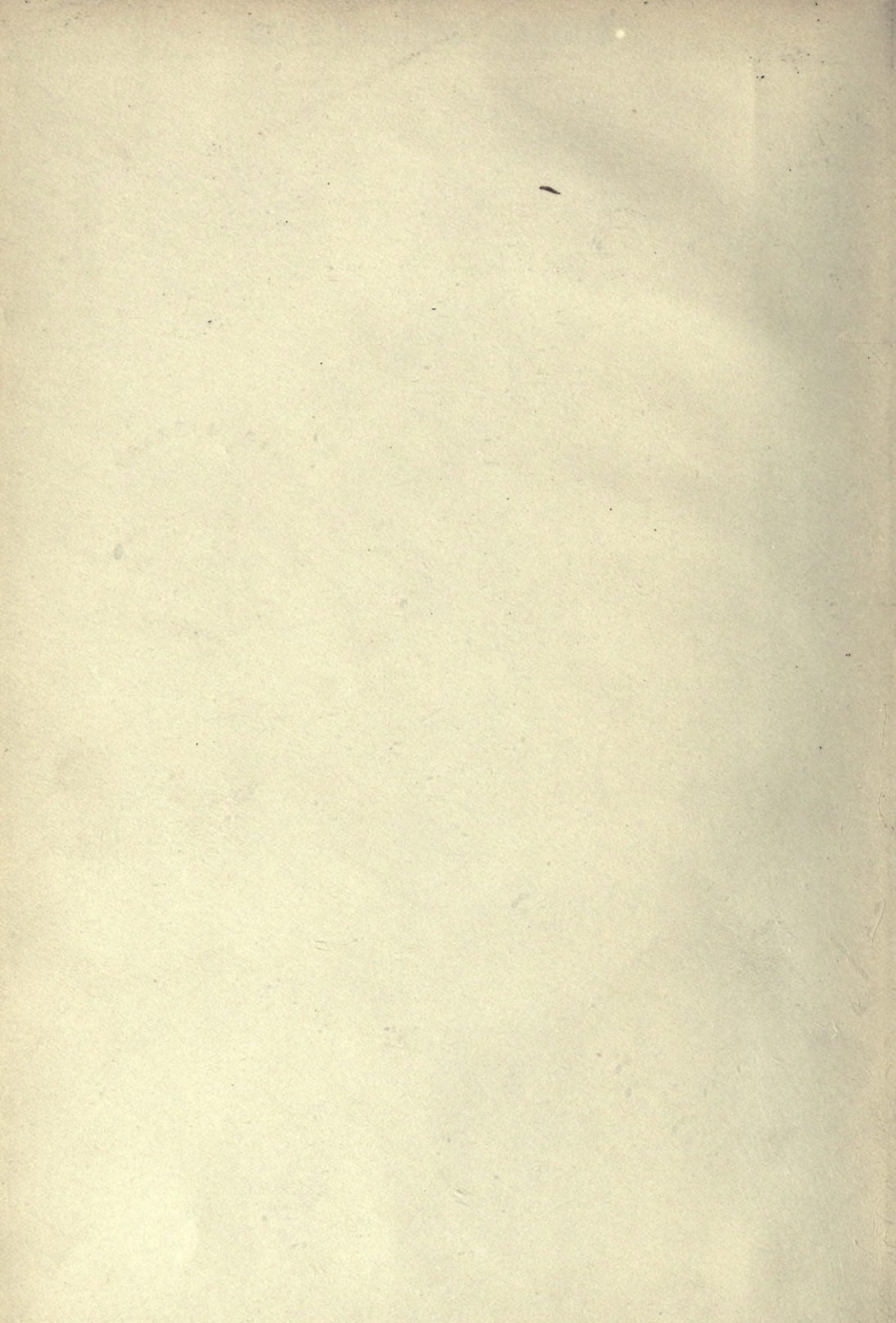


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THE BRITISH JOURNAL
OF
CHILDREN'S DISEASES

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EDITED BY
J. D. ROLLESTON, M.D.

VOL. XVIII

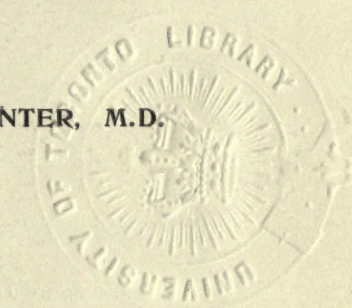
London

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BARTHOLOMEW CLOSE, E.C.

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THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XVIII.

JANUARY—MARCH, 1921.

Nos. 205-207.

Original Articles.

MALARIA IN CHILDREN AT SMYRNA.

By SOLON VERAS, M.D.

MALARIA is very widely spread throughout Asia Minor and is certainly one of the greatest scourges of the *villayet* of Smyrna. The disease is very prevalent all along the Aiden railway, especially in the valley of the Meander (Mendere) and in the neighbourhood of Macri.

The town of Smyrna, however, was relatively immune before the war, for among the sick children who came to my out-patient department from 1906-1913 only 3 per cent. were suffering from malaria, and even this 3 per cent. included a certain number of children who came from the interior of the *villayet* to be treated at Smyrna.

In 1914, out of 1072 children who were brought to see me only 14, or 1·3 per cent., were suffering from malaria, in spite of the well-known fact that children are specially susceptible to the disease (Hutinel).

During the last three years, however, malaria has increased in an alarming manner according to the medical men who have not left the country during this period.

I was absent from Smyrna during the war, and did not return till the end of May, 1920. Now from June to December, 1920, out of 802 children brought to see me, 88, or 11 per cent., were suffering from malaria—a considerably higher percentage than that of previous years.

Although the children whom I see are mostly infants, I have come across only a few cases of malaria in babies less than a year old. The exact figures are as follows :

Age.	Cases.
0-1 month	0
1-6 months	2
6-12 „	6
1-2 years	22
2-3 „	10
3-4 „	8
4-5 „	12
5-6 „	14
7-8 „	8
8-10 „	6
	—
	88

The largest proportion of cases thus occurred between the age of one and two years, as was also observed by Fusco among 147 children at the hospital at Grosseto.

The form of malarial fever observed by me was the quotidian type, which is the most frequent at Smyrna. Among my 88 cases I met with a characteristic tertian only 8 times. I have never seen the quartan type.

Concetti declares that malaria in children has a greater tendency to chronicity than in the adult. The same view is held by Cardamatis, who says that chronic malaria more frequently attacks children than does the acute disease. These statements are confirmed by my own experience, as 68 of my 88 cases belonged to the chronic form.

The febrile paroxysm, which, as is well known, is not always manifested by an initial rigor, especially in children under six years of age, was sometimes represented by an attack of tonico-clonic convulsions. As the slightest rise of temperature may cause spasms in an infant, it is naturally not unusual to find convulsions as the first manifestation of malaria.

I have seen convulsions as the initial symptom of malaria even in a girl, aged $2\frac{1}{2}$ years, but it should be added that this child had two or three attacks of convulsions in early infancy.

The influence of malaria on the nervous system of children is frequently seen. During the febrile attack the child is restless or else in a state bordering on collapse.

In addition to convulsions symptoms sometimes occur suggestive

of meningitis. I have seen a characteristic case of malarial meningism in a baby of 10 months who presented the tertian type and recovered after two injections of quinine.

An excessively rare variety is the psychopathic form, of which I have seen only one example during the whole of my medical career. The history of the case was as follows:

Antonio C—, aged 10 years, the son of a neuropathic father, developed a febrile attack on the afternoon of October the 3rd, the temperature rising to 104°F . The attack lasted eight hours and ceased towards midnight. The following morning the temperature was 96.8° . Throughout the attack the patient had hallucinations, he kept screaming out, tried to get out of bed and his talk was incoherent. This psychopathic state lasted even after termination of the febrile attack. The tongue was coated and the abdomen slightly distended. The heart and lungs were negative. The pupils reacted to light. There was a slight suggestion of nuchal rigidity. No Babinski's sign. When the child was spoken to he appeared to wake up, looked suddenly at the person addressing him and answered questions, but he soon resumed his haggard look and relapsed into his hallucinations. The febrile attack recurred in the afternoon and the temperature rose to 103.2° , the mental condition remaining the same.

No plasmodia were found on examination of the blood. On October the 5th the morning temperature was 97.2°F ., but the condition remained the same. In the afternoon there was another attack and the temperature was 103.6° . The serum test for typhoid and paratyphoid A and B was negative. On October the 6th the temperature in the morning was 97.5° , at 3 p.m. 100.4° , and at 9 p.m. 103.2° .

Another examination of the blood was made and plasmodia were found. 0.50 grm. of quinine was injected. On October the 7th the temperature in the morning was 97.6° , at 3 p.m. 99.2° , and at 9 p.m. 101.6° . Another injection of quinine was given. Improvement in the psychical symptoms took place, and after five injections the fever was completely cured.

In young children malaria is often manifested by alimentary disturbances, which may be of a very severe character, especially in Asia Minor, where enteritis is the chief cause of infantile mortality. If enteritis has preceded the malaria the latter may aggravate the former disease, and give rise to a condition of severe marasmus and anæmia, as is shown by the following case:

Andrea P—, aged 20 months, was brought to see me on October the 10th, as he had been feverish for some days, and was also

suffering from gastric symptoms with diarrhoea and an excess of mucus in the stools. The child, who had been breast-fed and weaned at the age of 10 months, had already been treated by me in June for a slight attack of enteritis. The child did not look well and weighed only $18\frac{3}{4}$ lb. I immediately put him on a suitable diet and the gastric symptoms rapidly improved, but the fever continued, and on October the 14th an examination of the blood showed the presence of the malarial parasite. Amœboid bodies presenting Schüffner's granules were seen in the enlarged corpuscles.

On October the 15th I injected 0.25 grm. quinine hydrochloride and the temperature fell; the following day I injected 0.40 grm., and the day after that 0.50 grm., but in the afternoon of October the 18th the temperature rose again to 102.2° F., so I gave another of 0.50 grm. and continued the injections daily until October the 25th. On October the 23rd I gave two injections, one in the morning and the other in the evening, with eight hours' interval between each. As the temperature had not exceeded 98.8° during the last two days, I stopped the injections for two days, but as the temperature rose again to 100° I resumed the injections, and the fever ceased.

The child, however, seemed much exhausted, had no appetite and hardly took any nourishment. The spleen was two fingers' breadth below the costal margin. Examination of the urine showed a faint trace of albumin, a few leucocytes, pavement and spheroidal epithelial cells, and a very few uric acid crystals. On October the 30th the weight was $18\frac{1}{4}$ lb. On the suggestion of one of my colleagues I injected 30 c.c. of glucose solution. There was at once a marked reaction, and the same evening the temperature rose to 102.8° F. On November the 1st I gave another injection of quinine, but I did not give any more quinine the next day, for the child was becoming cachectic, refused his food, and slight œdema appeared on the front of both feet. On November the 7th another examination of the blood was made, but no plasmodia were found. The number of leucocytes was 7500 per c.mm. The differential count was as follows: lymphocytes, 69 per cent.; mononuclears, 4 per cent.; polynuclears, 23 per cent.; transitionals, 2 per cent.; eosinophils, 1 per cent.; nucleated red cells, 1 per cent.; poikilocytosis and metachromasia. Weight $17\frac{1}{4}$ lb.

Under these circumstances I sent the child to the country, where the temperature improved, as it ranged between 98.6° and 99.2° F., and the little patient appeared to have more appetite and to take his food better. The season, however, was far advanced, and owing to

the bad weather the child was obliged to stay indoors, the temperature rose again to 100° and 100·4° F., the patient seemed to be losing ground and was brought back to Smyrna. I saw him again on November the 19th. He was then in a state of advanced cachexia, weighing only 17 lb. The spleen was enlarged, there was still œdema of the feet and slight œdema of the eyelids. Nothing was found in the lungs. On examination of the urine no albumin or sugar was found, and on microscopical examination a few leucocytes and epithelial cells were seen, but no casts. Death took place on November the 30th.

Apart from intestinal disturbances, which often accompany the febrile attack, children suffering from malaria not infrequently show abdominal meteorism; in other cases the abdominal wall is sunken and tender on palpation, especially in the right hypochondrium and epigastrium.

Enlargement of the spleen, which is one of the most characteristic symptoms of malaria, is not always present. On the other hand, I have almost invariably found some enlargement of the liver at the onset of the disease.

In primary infections the liver appears to be involved more rapidly than the spleen, and this explains, as Valagussa says, why young children remain so profoundly anæmic even after clinical recovery from malaria. As these children lose all the reserves of iron contained in the liver, the function of the bone-marrow is not sufficient to compensate for the loss.

The spleen is sometimes of an enormous size, especially in children with chronic malaria; sometimes even the ligament supporting the spleen gives way, and the spleen sinks down into the abdomen, as has been noted by Valagussa.

I have not observed any pulmonary complications attributable to malaria, but I have sometimes found that an acute affection of the respiratory system might rouse a latent malarial process into activity and give rise to relapses.

I have never observed anything special in the cardio-vascular system, except in cases of severe intoxication and pronounced anæmia, which may give rise to the same symptoms as those caused by any other infection.

As regards the urinary system, there is sometimes slight albuminuria and very often phosphaturia.

Hæmoglobinuria is not very rare in countries in which malaria is prevalent, several cases having been reported by all the medical men living in the interior of Asia Minor. Thirty cases of malarial

hæmoglobinuria were recorded by Dr. Mousséos, of Macri, in his communication to the Medical Congress of Athens in 1906.

Personally, I saw only one case of hæmoglobinuria during the whole of my medical career before 1920, and since June, 1920, I have seen two other examples, which are included among my eighty-eight cases of malaria. The following is the history of the first case :

Constantine L—, aged 5 years, was brought to see me at 3.30 p.m. on November the 17th, 1920, because for the last two days he had been feverish, and his urine appeared to contain blood. The mother stated that the child had had several attacks of malarial fever since September. The attack used to begin at 11 a.m., reach its height at 4 or 5 p.m., and come to an end in the evening. Temperature on arrival 100.6°F. , pulse 156. The child was extremely pale, and presented a definite enlargement of the spleen, and some tenderness on palpation in the hepatic region. Heart and lungs negative. The urine contained hæmoglobin. The child had recently been taking quinine, which I immediately discontinued. Examination of the blood showed the presence of hæmatozoa, ring forms and gametes being found. Red cells, 1,520,000; leucocytes, 14,900. Differential count: Polymorphonuclears, 53 per cent.; mononuclears, 11 per cent.; lymphocytes, 34 per cent.; eosinophils, 2 per cent.

On November the 18th the temperature did not exceed 96.8°F. throughout the day.

The next day the urine was free from hæmoglobin, and contained only a trace of albumin. Temperature 96.8°F. – 97.6°F. A little sodium arsenate in syrup of quinine was ordered. On November the 27th there was a slight trace of albumin in the urine, but the child had no febrile attacks nor hæmoglobinuria.

The second case was that of a girl, aged 5 years, a malarial subject, who had been given quinine by the mouth two months previously for a febrile attack, and had immediately afterwards shown hæmoglobin in the urine. Subcutaneous injections of quinine were then given, and the hæmoglobinuria disappeared simultaneously with the fever. The child remained twenty-five days without fever and then had another attack, which began at 9 a.m. and ceased at 2.30 p.m., the temperature rising to 101.2°F. Quinine, when given by mouth, at once gave rise to hæmoglobinuria. As soon as the quinine was stopped the urine became normal again, the hæmoglobinuria reappearing as soon as a fresh dose of quinine was taken. On examination of the blood malarial parasites were not found, but the red cells showed specific changes with Schüffner's granules.

I do not wish to draw conclusions from only a few cases of malarial hæmoglobinuria, but ingestion of quinine seems to have produced hæmolysis in these children who were malarial subjects.

Several writers have previously spoken of quinine hæmoglobinuria. Anastassiadès, of Calamenta, showed a case at the Congress of Athens in 1906 in a malarial subject, aged 8 years, and more recently René le Dentu has published two cases, one of which was in a child aged 13 years.

The chronic form of infantile malaria is certainly the most frequent, and this was the case with the children observed by me, as the statistics which I have quoted show. In chronic malaria the attacks usually recur at intervals, but there is a larval form with a daily temperature not above 99·4° F. which is the most refractory to treatment, and causes a high degree of anæmia.

The following is a typical case :

Edward B—, aged 21 months, was brought to me on June the 26th, 1920, by his mother, who stated that for the last fortnight the child had had a temperature ranging between 98·6° and 99·6° F. and had lost his appetite. The child did not show anything in the lungs, the stools were regular, and nothing special was found on examination of the alimentary tract.

There was no obvious enlargement of the spleen. The liver was slightly tender on palpation. The patient was anæmic, although the face was not thin. His weight was 26 lb. Examination of the blood showed the presence of the malarial parasite.

I prescribed 0·50 grm. of quinine every morning in the form of aristochine, and the same dose was continued until July the 4th. As no improvement was observed, on July the 5th I gave the child an injection of 0·50 grm. of formiate of quinine and continued the injections daily till July 10th. As I did not find any change in the patient's temperature I stopped the injections, and prescribed again by mouth 0·50 grm. of quinine and 2–3 drops of Pearson's solution twice a day. As the temperature still did not come down to normal I ordered 5 grm. of *esanoferline* on July the 25th *t.d.s.*, namely at 6 a.m., 9 a.m. and noon. As the *esanoferline* was not any more efficacious than the other drugs I insisted on the family taking the child to the country. On August the 15th the child went for a month to the country, where he lived on a hill five miles from Smyrna and passed the whole day in the open air. On his return on September the 14th the child had no longer any fever and weighed 26½ lb. From time to time, however, there was an occasional rise of temperature, but it occurred very irregularly and not every day, and the child continued to gain

weight. On my advice *esanofeline* was given again for a fortnight.

I have since learnt that the slight rises of temperature did not occur any more.

The following is an almost identical case :

Charalambos L—, aged $3\frac{1}{2}$ years, was brought to me on June the 27th because for the last two months his temperature had been constantly between 98.8° and 99.4° F. The child, who had been given a fair amount of quinine, had been taking *esanofele* pills for seventeen days, but without any improvement. The heart and lungs were negative, there was no enlargement of the spleen, but there was a certain tenderness on palpation. Examination of the liver was negative, urine normal. I stopped the quinine for four days, during which the temperature did not rise above 99.4° F., and then examined the blood, which showed the presence of plasmodia. Quinine was then resumed in doses of 0.50, 0.60 and even 0.75 grm. daily, but without any improvement. As injections of 0.50 grm. of formiate of quinine given at first every other day and then daily had no effect on the patient's temperature, I told the parents to take him to the country for a month. The child left Smyrna in August and spent some time at Athens. On his return he was completely free of fever.

Treatment.—Recovery may sometimes take place spontaneously, even in severe forms of malaria, especially when the patient has been removed from the infectious environment, as the cases which I have related show. The degeneration and death of a large number of parasites at each febrile attack favour the process of spontaneous recovery, another factor in which is phagocytosis.

There is no need to insist upon the importance of the specific remedy for malaria, for everybody knows that the disease can hardly be cured without quinine. I will only say a few words about the method of administering this drug to children and the way in which I obtained the best results with my patients.

Children tolerate quinine perhaps better than adults, so that the doses are not very different from those given to adults. I usually adopt the following dosage :

Age.		Dose in the 24 hours.
0-6 months	. . .	0.10-0.15 grm. quinine
6-12 "	. . .	0.15-0.30 " "
1-2 years	. . .	0.20-0.40 " "
2-5 "	. . .	0.25-0.50 " "

In older children the adult dose can be employed, but even in

children under five years of age I sometimes considerably exceed the dose given above. I have given 0·60 grm. to children of 6 months and 1 grm. to a child of 20 months without any bad effects. In order to obtain the best results the first dose of quinine should be given at the end of the febrile attack, and the next dose three or four hours before the commencement of the following attack. It is advisable to continue the quinine treatment during the apyrexial interval between the attacks.

As administration of quinine by mouth is the simplest method it is the one usually employed in ordinary cases, but the method is not without its drawbacks owing to the bitter taste of the drug.

I am not very fond of pills or tablets, for they often pass through the intestine without being digested and are found in the fæces, and cachets can only be swallowed by older children.

The quinine salt which children take best is *aristochine*, which is a neutral carbonate of quinine and contains 96·1 per cent. of quinine. As aristochine is tasteless there is no difficulty in giving it by mouth. The doses are the same as of all the other salts of quinine.

Euquinine.—The ethyl carbonic ether of quinine, which is likewise tasteless, can also be used, but its action is weaker than that of ordinary quinine, and its dosage has almost to be doubled.

Aristochine and euquinine not being soluble in water, little children sometimes refuse to take them, so that on a few occasions I have had to give them in suspension in a syrup, which in the case of aristochine should not be acid. I employ Concetti's formula: Aristochine 1·20 grm., syrup. aurant. 30 grm., Aq. anisi 10 grm. Two to three spoonfuls can be given according to the age of the child.

I have lately employed the tannate of quinine, which has only a slightly bitter taste, but the salt is very poor in quinine, and can only be employed with success in some cases of relapse or rather as a prophylactic. It has also been recommended for hæmoglobinuria.

Almost the same is to be said of chocolate tablets, which generally contain 0·10 grm. of quinine; if the dose has to be repeated, there is sometimes a risk of causing digestive disturbances.

The inunction method with sulphate of quinine made up in an ointment is currently employed in the East, but is not to be recommended, for not only does it produce hardly any results, but it is liable to give rise to troublesome eruptions.

Administration by rectum is also very uncertain; as enemata are not very easily given, I have sometimes employed suppositories, but without finding any advantage in the method. I

usually prescribe 0·20 to 0·30 grm. of hydrochloride of quinine to 2 grm. of cacao butter for a suppository.

In severe forms of malaria hypodermic injection into the deep cellular tissue is certainly the best method for the administration of quinine. In such cases I give an injection immediately after the attack and another four hours before the following attack, continuing the injections daily in quotidian fever and every other day in tertian fever. I usually give 0·25 grm., or preferably 0·50 grm. of quinine in each injection.

The basic hydrochloride of quinine in a sterilised solution is generally employed, but I prefer the formiate of quinine, which is much less painful and much better tolerated by the little patients.

In acute forms of the disease injections of quinine have given me the best results.

I have never employed the intravenous method.

Hypodermic injections do not always yield the same favourable results, especially in continued fevers, and particularly in the larval form, in which the temperature does not exceed 99·4° F. In such cases after a series of injections of quinine I have sometimes obtained a cure by the use of arsenic, given either as an injection in the form of cacodylate or by mouth in the form of a solution of arsenate of soda (5–20 drops of Pearson's solution according to the age of the child). I also prescribe arsenate of soda 0·05 grm., syrup of quinine 100 grm., a teaspoonful once or twice a day for a fortnight and then a rest of ten days.

Another drug with which I have obtained fairly good results in the chronic form of malaria is an Italian preparation known by the name of *esanofele*, which is a mixture of quinine hydrochloride, arsenic and citrate of iron. Two pills daily are usually given, one at 6 a.m. and the other at 9 p.m. In younger children the same preparation is given in the form of a syrup called *esanofelina*, of which 5 grm. are prescribed two or three times a day.

Arsenical preparations also serve to combat malarial anæmia. In some cases I employ the syrup of hæmoglobin for the same purpose.

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ON THE CÆLIAC AND ALLIED TYPES OF INFANTILISM: A RETROSPECT AND BIBLIOGRAPHY.

By REGINALD MILLER, M.D., F.R.C.P.Lond.,

Physician to Paddington Green Children’s Hospital; Physician to Out-Patients and Children’s Out-Patient Department, St. Mary’s Hospital.

THERE is considerable difficulty in tracing past writings on cœliac disease, partly because the condition has been described under a variety of names, and partly because it has never received recognition in the columns of the ‘Index Medicus’ as either cœliac disease or morbus cœliacus. Having recently had occasion to read as much of its literature as I could find, I have thought that such a bibliography as I have been able to compile might be of assistance to others. I have included references to acholia, pancreatic and intestinal infantilism, whose relationship to cœliac disease I discuss as I deal with the literature chronologically.

It is well known that the subject starts with the publication in 1888 of a paper “On the Cœliac Affection” by Samuel Gee.(1) In this brief communication we find an extraordinarily vivid description of the cœliac child as we know it to-day. Gee did not attempt any explanation of the origin of the malady beyond attributing it to a digestive fault, and affirmed that he was unable to discover any morbid changes in the “dead bodies” to account for the symptoms. He regarded sprue as the same condition in India, and possibly included some cases which we should now class as “infantile atrophy”; but there is no doubt at all that he described, and was the first to describe, what we now know as cœliac disease. It must be mentioned, however, that although he attributed the pallor of the stools to some extent to deficiency in bile, he did not recognise that the chief failure of digestion was that of fat.

In the next year Walker (2) published a paper which requires

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mention, as it is referred to by some of the later writers on cœliac disease. It concerned two adult cases of pancreatic steatorrhœa (confirmed post mortem), and the author argued that for the bile to produce coloration of the faces the presence of the pancreatic juice was necessary. His views appear to have been more discussed than accepted. In the same year Gibbons (3), whom Gee had introduced to cœliac disease, published a long paper on the affection. His conception of the disease undoubtedly included some "atrophic" cases (the majority of the children with it die, he says), but he firmly excluded sprue as "not the same disease." It is quite clear from his paper that the pre-eminent importance of the failure in fat-digestion was not recognised. He gave no accounts of autopsies, but stated that the disease had "no morbid anatomy" on the rather dangerous ground that "if it had it would be known long ago." He regarded the cause of the disease as a wide-spread disturbance of digestive glands, probably of nervous origin. He thought that the pallor of the stools did not necessarily exclude the presence of bile in them, and this, curiously enough, on the ground that an absence of bile would lead to excessive fat wastage in the stools, which had not then been recognised in cœliac disease.

There is then a long pause before the appearance of the third classical paper on the affection. This is Cheadle's "On Acholia" (5), published in 1903. Six cases, one of which was admittedly sprue, were described. The importance of this paper is very great. First, the excess of fat in the stools was recognised for the first time, and was proved by fat estimations by W. H. Willcox. Secondly, the analogy between transient and protracted cases was clearly demonstrated. Thirdly, emphasis was laid on the disturbed function of the liver. Dr. Van Praagh tells me that Cheadle regarded his protracted cases as similar to those described as cœliac disease by Gee and Gibbons, whose work he acknowledged. We may therefore be assured that his term "acholia" was meant to emphasise the importance of the biliary factor, and Cheadle certainly regarded the condition as essentially due to a cessation of bile-secretion. He found bile-acids absent in some cases, and thought the pigments were either absent or diminished in amount. He agreed with Gibbons in invoking a nervous origin for the disturbance of hepatic function, and thought that both chill and teething might set up the reflex disturbance. He recommended the diminution of fat in the diet, and treated his case of sprue by ox-bile.

With these three papers by Gee, Gibbons and Cheadle the clinical description of the disease in its main features was more or less

complete. No detailed autopsies had been published up to this time. Cheadle's paper was followed by one by Van Praagh (8) and one by May (14), and then the term "acholia" seems to have been dropped.

In 1902 Bramwell (4) first showed his case of infantilism, which he regarded as of pancreatic origin. Thereafter appeared a series of publications by him (6, 9, 11, 12, 19), and others by Thomson (10, 17) and Rentoul (13) on "pancreatic infantilism," culminating in the most important of all—Bramwell's paper of 1915 (35), in which the after-histories of the various cases were disclosed. I do not propose to discuss here Bramwell's claim to have substantiated the pancreatic origin of the fatty diarrhoea and infantilism in his cases: the point I wish to make is this, that Thomson in 1908 and Bramwell in 1915 admitted that some cases showing these two symptoms were not of pancreatic origin. This line of differentiation was drawn mainly on account of the failure of some cases to improve under the administration of pancreatic preparations; and in 1915 Bramwell disowned such cases, classing them as examples of Herter's "intestinal infantilism," which had by then attracted notice.

To go back, after the publication of the group of papers on acholia (1903-5), those on pancreatic infantilism cover most of the ground until the appearance of Herter's book on "intestinal infantilism," published in New York in 1908 (16). This book became well known, and its title probably more so, and it is necessary to sketch how Herter's work fits in with the investigations of others.

In 1908, then, Herter's book appeared. In it he published the detailed accounts of five cases of persistent fatty diarrhoea with infantilism. He appears to have been unfamiliar with the publications of Gee, Cheadle or Bramwell, and it seems clear beyond dispute that, as Still agrees, his cases were examples of Gee's coeliac affection. Taking this for granted, we have to consider the theory of causation brought forward by Herter. Hitherto coeliac disease had been regarded as primarily a digestive fault, particularly affecting fat-digestion; but Herter attributed it to a failure in fat-absorption due to inflammatory disease of the intestine; this enteritis in turn he attributed to a persistence and overgrowth of intestinal flora of the nursling period, notably *B. bifidus*. These bacteriological findings have not met with general acceptance, although they were confirmed by Freeman (23) in 1911; but the conception of coeliac disease as primarily an enteritis is one of great importance. This suggestion was a surmise on Herter's part: he had no fatal cases and no post-mortem evidence, and, in fact, no autopsy was described under the

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title of "intestinal infantilism" until Moorhead's (44) paper in 1920. It is, of course, admitted that, given an enteritis of sufficient severity, an excessive fat loss in the fæces will result; but can this be proved to be the case in cœliac disease?

At this point it is evident that the question of nomenclature becomes very confused. If it is agreed that the cases described by Herter were instances of cœliac disease, then (a) if Herter's assumption of the intestinal origin of the malady can be proved, "intestinal infantilism" is a correct name for cœliac disease; but (b) if his view cannot be proved, it is better to keep to the non-committal terms of cœliac disease and cœliac infantilism. In my opinion Herter's view is certainly unproven and most probably wrong. Then arises a third complication: if Herter were wrong in associating cœliac disease with a causative enteritis, are there other cases of infantilism produced by an enteritis, *i. e.* is there a true "intestinal infantilism" (not of Herter)? It has been known since long before Gee's paper that chronic diarrhoea may produce stunting of growth, and I do not doubt that there are cases, not of cœliac disease, which could properly be described as "intestinal infantilism."

Leaving these controversial matters, it remains to be said that the title "intestinal infantilism" has been used by various authors, covering cases apparently varying from true cœliac disease to infantile atrophy. Here must be mentioned papers by Freeman (23), Stoos (37), Bernheim-Karrer (38), and Moorhead (44).

The next important paper is that published in 1913 by Poynton, Armstrong and Nabarro (33). In it were given detailed accounts of nine cases of chronic and recurrent diarrhoea. The chief interest of the paper is centred round the first and only fatal case, which was very fully investigated after death. Of this autopsy, Still, in his Lumleian Lectures on cœliac disease (39), wrote that it was the only detailed record of a post-mortem which he had been able to find. But I have endeavoured to show (47) that this fatal case is not easily regarded as an example of cœliac disease (which term was avoided by the authors), and is rather to be classed as one of true intestinal infantilism probably due to a chronic dysentery of the "asylum" type. The lesions found consisted of a chronic gastro-enteritis, pancreatitis and fatty liver. Readers of the paper will form their own conclusions about this particular case. The non-fatal cases read for the most part like examples of cœliac disease.

During the war cœliac disease received a considerable up-lift from being put on the schedule of diseases for which extra meat might be obtained. I believe I am right in stating that this very select list

included only tuberculosis, diabetes, coeliac disease and pancreatic insufficiency. Under these circumstances the disease emerged from its obscurity and attained wide popularity, so much so that its name was removed from the schedule, and, it being debased from its exalted position, there subsided what was probably the only epidemic of the complaint which will ever have an existence even on paper. After this it became necessary to sign up true cases of coeliac disease as instances of pancreatic insufficiency, and thus it looked as though the cause of the disease had been officially ascertained; but this turned out not to be the case.

In 1918 Still's Lumleian Lectures "On Coeliac Disease" (39) appeared. It is not proposed to give here a *résumé* of these important lectures, but two points must be mentioned: First, he described an autopsy on a curiously rapid case in which enteritis and pancreatitis were found, but differing from the one above mentioned (33) in that no changes were present in the liver. Secondly, while the discussion of the cause of the disease was on broad and non-committal lines, the author seemed to favour the view of the prime fault being one of digestive secretion. Certainly he hesitated to ascribe it to a primary enteritis, and on clinical grounds was inclined to regard any symptoms of enteritis as usually late in appearance and secondary in development.

In 1919 Forsyth (42) suggested that coeliac disease might perhaps be due to boric acid poisoning; and McCarrison (43) that it could be regarded as a deficiency disease.

In 1920 Moorhead (44) published two important cases under the title of "Infantilism: Pancreatic and Intestinal." The case which he regarded as one of Herter's intestinal infantilism came to autopsy, and catarrhal changes in the lower bowel, which the author inferred were the causative lesions, were found. In the pancreatic case true steatorrhœa of the pancreatic type occurred—*cf.* Mumford's Case 1 (18). In the same year the present author, in association with Webster and Perkins (46), published the details of three cases of coeliac infantilism treated by bile-salts, the results being controlled by fœcal analysis. The application of some of the modern pancreatic tests in coeliac cases was recorded; they were held to show no evidence in favour of the presence of pancreatic disease. In a letter of the same year (46) I was able to give the after-histories of two cases published by Cheadle and Van Praagh in 1903 and 1904 respectively.

In the present year I am recording (47) an autopsy on a case of coeliac infantilism, in which no chronic changes were found in the intestine, pancreas or liver to account for the protracted symptoms.

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From this I conclude that, as the original observers stated, cœliac disease is independent of structural causative changes, and I discuss the other autopsies (mentioned above) in the light of my own case.

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NOTES ON MONGOLISM.

By HUGH THURSFIELD, M.D., F.R.C.P.,

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IN the five years between the beginning of 1912 and 1916 I kept notes of forty-two Mongol children whom I saw at the Hospital for Sick Children. These forty-two patients do not represent all the Mongols whom I saw in this period for, unfortunately, especially during the years 1915 and 1916, my notes were defective. In 1920 I endeavoured to trace these forty-two patients, but; no doubt owing to the effects of the war on the movements of the parents of the children, I succeeded in obtaining interviews with, or news of the death of, only twenty-five out of the forty-two.

Frequency of the condition.—If my colleagues in the Out-Patient Department saw an equal number of these cases in the five years there must have been some two-hundred Mongols who attended the hospital in that time; but the number of such cases seen at a hospital of this character is no index of the frequency of the condition in the population generally. Such cases are brought by their parents or referred by doctors to such a hospital in abnormal numbers. At such a hospital they certainly bear an undue proportion not only to the general out-patients but to the imbeciles. The figures which follow are those of the forty-two cases which I personally have observed.

Place of the Mongol in the family.—I find no corroboration of the current statement that the Mongol is apt to be the last-born child of a long family. Of the forty-two cases five were first, and eleven were second children, three were third, and seven were fourth, so that two-thirds of the whole number were certainly not members of an unduly long family. Of the remaining fourteen one was a fifth child, three were sixth, three seventh, three eighth, three ninth, and one was the tenth.

Nor again are they by any means the last children. In seven instances children have been born since the advent of the Mongol: respectively a third, a fourth, two fifths, an eighth, a ninth and a tenth, all quite healthy children.

Age of the mother.—A current statement on this point is that the mother of the Mongol is near the end of the child-bearing period. Of the mothers in this series the average age was 36 years, but if the mothers of more than four children are excluded the average

age sinks to between 33 and 34 years—an age which is certainly within the child-bearing period. Among the mothers of Mongols were apparently healthy young women of 23, 25 and 27 years. The age at marriage and the rapidity with which children are born, facts of which in this series I have no knowledge, are obviously of great importance in respect of the exhaustion of the reproductive faculty; but since two-thirds of the children were born of mothers under 35 years of age the statement that the mother is near the end of the child-bearing period is hardly corroborated.

Miscarriages.—I do not know what may be the average of miscarriages in the families of the hospital class of patients, but among these forty-two mothers were nineteen who had miscarried at some time in their pregnancies, many of them more than once. On the other hand there were seventeen with more than one pregnancy who had not had a miscarriage.

Labour.—As one would expect from the tendency of the Mongol child to be abnormally small, there is no indication of difficult labour—two only of the mothers were delivered instrumentally, but my notes on this point are defective; seventeen, however, are noted as having had natural labours.

Health during pregnancy.—This was noted as indifferent in five cases; in one it was stated that the mother was insufficiently fed during her pregnancy; in one that she was summoned in the seventh month of her pregnancy to visit her husband who had received a disfiguring face wound; and in one great mental worry was alleged. On the whole there is no evidence to connect the advent of the Mongol with any obvious defect of health during the months of pregnancy.

Infective disease.—Nor does there appear to be any evidence of the influence of syphilis or tuberculosis. In no instance in this series was there any obvious taint of either of these diseases; and in the few cases where a Wassermann reaction was used for a test the result was negative. This is entirely in accordance with all previous experience.

Prevention of conception.—I have only quite lately obtained information on a point of some interest. In two instances of the birth of a Mongol at the first conception, the mothers stated that in the early years of married life children were not wanted, and conception had been delayed for five and eight years respectively. I have this year seen another instance in which the first-born was a Mongol, appearing after ten years of married life. In three other instances in the series the interval between the birth of the previous

child and the Mongol was nine and a half, nine, and five years, though no similar reason was given.

Cardiac defects.—Turning to the patients I find that an obvious cardiac defect was noted in seven of the forty-two, six were not noted, and of the remaining twenty-nine it is definitely stated that there was no physical sign of a cardiac lesion, but in two of these attacks of “blueness” were stated to occur. Of the seven patients who had definite cardiac lesions three are known to be dead; one is alive, aged 15 years, well-grown and with an efficient circulation, but still exhibiting a soft systolic murmur at the apex of the heart. The other three cases were not traced. This proportion of definite cardiac defects appears to coincide with previous observations.

Other defects.—Nystagmus was noted in four cases, double congenital cataract in one, an accessory auricle in front of the ear in one, and in one webbed-toes, the second and third toes on either foot being joined together. It was of interest that the mother had the same defect in both feet, and so, she alleged, had her three other children.

The well-known incurving of the last phalanx of the little fingers was noted as present in thirteen patients, absent in sixteen, and not noted in thirteen.

Fissured tongue.—The fissuring of the tongue which is so pronounced and characteristic in older Mongols is not present for the first few months of life. I have seen it appear as early as the twelfth month of life, but it is not usually a striking peculiarity till after dentition has advanced in the second year. By the fifth year it is generally marked.

These patients presented the other well-known characters of the Mongol—the round skull, the frequent flattening of the occiput, the scanty hair, the scurfy skin, and the flabby muscles with the absence of muscle-tone. They had the marked tendency to catarrhal inflammation of the mucous membranes of the nose, eyes, mouth and fauces; and the liability to bronchitis, which is so often the cause of death. There is, however, no other outstanding feature in my notes.

Mortality.—Of the twenty-five patients traced fourteen are dead, the causes of death being chiefly broncho-pneumonia and diarrhœa. One child died suddenly after an anæsthetic, and two suddenly without apparent cause. The oldest survivor is aged 15 years and the youngest survivor of the series is now aged 6 years.

Progress and treatment.—Of the eleven patients seen alive the eldest was aged 15 years, two others about twelve, and the rest between six and twelve years. None of them showed the least sign of any tendency to become normal with increasing years, though

the more obvious signs of mental defect were certainly lessened. The most progress both physically and mentally was shown in a child who throughout the whole period had taken small doses of thyroid extract. Whenever this was for any reason omitted for a few weeks she began to suffer from chilblains and bronchitis. There can be no doubt, I think, in the mind of anyone who follows these cases carefully over a considerable period, that small doses of thyroid extract have a beneficial effect on the physical condition, though there is room for doubt as to mental improvement. However, I am myself convinced that there is some benefit on the mental side as well as on the physical, though there is no prospect of attaining effects commensurate with those observed in the case of cretins. Speech, general intelligence, obedience, and even temper seem to me to be promoted by the use of thyroid, and of course the earlier it is begun and the more consistently it is pursued the better the prospect. The contrast between this child aged 12 years and a boy aged 15 years, who has had no consistent treatment with thyroid, is striking. In the one case a docile, amiable, fairly well-developed child with much to say for herself and sufficiently intelligent to be sent on short errands; the other uncontrollable, liable to attacks of savage temper, always ailing, and not even able to dress himself. The benefit to be derived from thyroid medication has been recognised, especially by French physicians working at institutions with Mongols as inmates over long periods. The thesis of Desgeorges* gives some interesting figures as to growth during the period of administration of the extract with the marked diminution of progress at times when it was not employed. He warns the physician not to expect the striking results which follow in the case of cretinism, but has no doubt as to the physical benefit.

A CASE OF HEMI-HYPERTROPHY.

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With comments by F. PARKES WEBER, M.D., F.R.C.P.Lond.

A FEMALE infant, aged 7 months, was admitted to the Royal Hospital for Sick Children, Bristol, under my care on February the 14th, 1921. The parents had noticed very shortly after her birth that one side was bigger than the other.

* Pierre Desgeorges, 'Thèses de Paris,' 1904-5, No. 296.

The father is a miner, and there are altogether six children in the family, all healthy, without deformity or other abnormality.

The child was born at full time ; has been breast fed from birth, and now weighs $23\frac{1}{2}$ lb. She is well nourished and thoroughly bright and intelligent. The muscles are well developed throughout, and there is no loss or diminution in power on either side. The internal organs appear to be normal.



Special features.—The cranium is symmetrical, and the fontanelle normal. The hair is of ordinary texture and even growth all over the scalp. The skin is without blemish, and there is a complete absence of nævi, moles or telangiectases. The eyes, eyebrows, eyelids and eyelashes are normal. The nose and nostrils are symmetrical.

The right cheek has a bulged and swollen appearance compared with the left, which appears normal. The right zygoma feels larger than the left ; but the facial swelling seems mainly due to an increase in the subcutaneous tissue. The right ear is larger than the left. The lips participate in the cheek hypertrophy on the right side. The tongue is markedly hypertrophied on the right side, and on protrusion

is pushed over to the left. The tonsils are not to be seen on either side. The alveolar margins and palate are not involved.

The scapulæ and clavicles are equal. The position of the right mamma is occupied by a well-marked, circular mass of soft tissue. The left mamma is normal. The nipples are equal and even.

The ribs are symmetrical, and the chest-wall is not appreciably thicker on the right side.

The abdomen: There is a pendulous sagging of the abdominal parietes on the right side.

The right labium majus is considerably larger than the left.

The right arm is slightly longer (0.6 cm.) than the left, but its circumference is equal. The right forearm is also slightly longer (0.7 cm.), but does not differ in circumference. The right hand is 0.4 cm. longer than the left, but otherwise there is no conspicuous difference in size or appearance.

The lower limbs present the greatest contrast in size, the right leg being obviously longer than the left, and its girth manifestly greater. The right foot is also longer and more fleshy than its fellow.

There is no œdema, nor is there any evidence of inequality in the blood distribution throughout the body.

The general appearance is that of a greatly increased development of subcutaneous fatty tissue.

Measurements.	Right side.	Left side.
Length of arm—acromion to olecranon	14 cm. .	13.4 cm.
Circumference of arm	18 „ .	18 „
Length of forearm—olecranon to styloid	18.7 „ .	18 „
Length of hand	8.6 „ .	8.2 „
Length of thigh and leg—anterior spine to internal malleolus	30.4 „ .	29 „
Circumference of thigh at groin	34 „ .	31 „
Maximum circumference of calf	26 „ .	20.5 „
Length of foot	13.3 „ .	11 „
Half circumference—umbilicus to verte- bral column	27.5 „ .	22.5 „
Length of pinna	4.75 „ .	4.4 „

I regret that the skiagram was a failure.

Lastly, I am indebted to the House-Physician, Dr. Symons, for valuable assistance with the measurements, and to Dr. Astley Weston, the House-Surgeon, for the photograph, which was a matter of considerable difficulty.

COMMENTS ON THE ABOVE CASE BY F. PARKES WEBER, M.D.

The case in some respects reminds one of H. Batty Shaw's case of "Hemi-obesity in an otherwise Healthy Girl, aged 12 months" ('Proc. Roy. Soc. Med.,' 1915, viii, Section for the Study of Disease in Children, p. 15), and Robert Hutchison's case of hemi-hypertrophy in a boy, aged 4 months (BRITISH JOURNAL OF CHILDREN'S DISEASES, 1904, i, p. 258), but in neither of these cases were the affected limbs at all longer than the unaffected limbs.

Dr. Hutchison regarded his case as one of hemi-hypertrophy of the "false" sort, involving the soft parts only and not the bones.

In a somewhat similar case, however, in a boy, aged 5 months, Dr. Hutchison (BRITISH JOURNAL OF CHILDREN'S DISEASES, 1916, xiii, p. 233) found that the arm and leg of the affected (right) side were appreciably longer than those of the normal (left) side. Perhaps Dr. H. H. Chodak Gregory's case ('Proc. Roy. Soc. Med.,' 1920, xiii, Section for the Study of Disease in Children, p. 99) was similar. The patient was a female child, aged $2\frac{1}{2}$ years, the left side of whose body was larger than the right. The skull, however, was larger on the right side, though the left side of the face was a little bigger than the right. The fact that the cranium was larger on the right side in Dr. Gregory's case suggests that the brain was perhaps bigger on the right side—that is to say, on the side opposite to the hemi-hypertrophy of the limbs. In the discussion on the case Dr. E. A. Cockayne remarked that Purves Stewart ('Diseases of the Nervous System,' 4th edition, 1916, p. 308) described and figured a case of hemi-hypertrophy of the left side, in which the right side of the cranium was larger than the left.

THE NATURE OF THE PLANTAR REFLEX IN EARLY LIFE AND THE CAUSES OF ITS VARIATIONS.*

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I HAVE examined the plantar reflex in some 500 cases from birth up to the age of seven years, the large majority being under four years. I have not recorded the exact number of cases at the various age-periods in which no response could be elicited, because absence of a

* Abstract of a thesis approved for the Degree of Doctor of Medicine in the University of London.

plantar reflex is not peculiar to infancy ; in a good many cases in adults I have failed to obtain any plantar response. Moreover, absence of the response is entirely due to an affection or deficient development of the reflex arc, and gives no information regarding the upper motor neuron, with which alone I was concerned in this investigation. As, however, I was able to obtain a response in 426 cases, I conclude that the total percentage of non-responses is about 15 per cent. In this respect therefore my figures are more in agreement with those of Engstler, who, in a series of 1000 cases, found the reflex to be absent in 109 cases (*i. e.* 11 per cent.), and of Finizio, who, amongst 500 newborn infants, failed to elicit it in 5 per cent., than with the 35 per cent. of absent reflexes given by Lovett Morse, and 40 per cent. given by Schüler.

As regards the nature of the response my findings agree very closely with those of Finizio. For while all other observers find the prevailing response to be of the Babinski type, both Finizio and myself find the proportion between plantar flexion and dorsiflexion to be approximately 4 : 1. I cannot, however, confirm Finizio's statement with respect to the influence of forceps delivery upon the nature of the response, for while Finizio finds that in difficult forceps cases there is dorsiflexion of the toe, of the 2 newborn forceps cases in my series, one of which (case 602) was a particularly difficult one and gave rise to a good deal of trauma, both gave a normal response (*i. e.* plantar flexion). But my numbers are too few to draw any conclusions.

As regards the age at which the plantar reflex definitely becomes plantar flexor in type, I cannot agree with the conclusions of some observers that it depends upon the age at which the child begins to walk, since not only do I find plantar flexion to be the prevailing response before the walking age, but I have obtained it in a few cases, either unilaterally or bilaterally, long after the child had begun to walk. Moreover, in the same infant you might at different times elicit either plantar flexion or dorsiflexion.

CONCLUSIONS.

(1) The prevailing plantar response in early life is plantar flexion of the big toe, although when a dorsiflexion of the toe occurs it has not the same significance as a similar response in the adult.

(2) The pyramidal tracts are sufficiently developed at birth (in cases born at full term) to give a normal adult type of plantar reflex even *in utero*, but owing to easily aroused circulatory disturbances in

early life the consequent changes in the circulation in the region of the cord are sufficient to compress the incompletely myelinated pyramidal tracts to evoke a Babinski phenomenon, either unilaterally or bilaterally.

(3) In premature infants the response is nearly always of the Babinski type, up to five or six weeks post-natal life, because of the almost total absence of myelination of their pyramidal tracts.

(4) Malnutrition, as judged by defective weight and length, is not in itself sufficient to give a Babinski sign, but inasmuch as prematurity and defective weight and length go hand in hand up to about five or six weeks, the Babinski phenomenon seen in badly developed infants up to that age is due to the prematurity rather than to the malnutrition.

(5) Bilateral plantar flexion is at all ages as common in girls as in boys, but bilateral dorsiflexion is at all age-periods in infancy more common in girls than in boys.

(6) Breast-feeding during the first few weeks of life probably tends to diminish the incidence of a bilateral Babinski phenomenon. This may be so, owing to the greater percentage of lecithin and lactose in human milk, which help the more rapid myelination of the pyramidal tracts. After the first month or so breast-feeding has no advantage in this respect over bottle-feeding.

(7) Toxic influences, either from the bowel or from other causes, do not affect the conductivity of impulses along the fibres of the pyramidal tracts.

(8) Bilateral dorsiflexion of the toes is commoner in cases with a subnormal temperature, because probably in such cases there is a greater congestion of the spinal cord as the result of—

(a) The pallor of the skin, whereby a relatively much larger quantity of blood goes to the internal organs (including the spinal cord) than in adults, because the superficial area of the skin is relatively greater in the infant.

(b) The interference with the action of the diaphragm, and consequently of the pumping action of the heart—a fact shown to occur in cases of severe disturbances of nutrition, which are frequently the accompaniments of subnormal temperatures.

(9) Bilateral dorsiflexion is slightly more common in dolichocephalic than in brachycephalic infants, possibly because inhibitory control is less powerful in the former than in the latter.

(10) Rickets does not favour the occurrence of a Babinski phenomenon.

(11) The age at which the Babinski sign vanishes has no relation to the age at which the child begins to walk. In the majority of cases of very young infants who cannot even sit up the Babinski sign is absent, and in a large number of cases that can walk and are "strong on their legs" (in some even during the third and fourth years) the Babinski sign is present.

(12) As the peripheral nerves are imperfectly myelinated at birth (see my 'Ante-Natal and Post-Natal Child Physiology,' p. 228), a possible explanation of a Babinski phenomenon in certain infants is more imperfect development of the lower motor neuron supplying the flexors of the toes but better development of the neuron supplying the extensors. In such cases of course extension is the only possible movement.

(13) The inconstant nature of the response in certain infants, in whom at the same examination one may obtain on one stimulation a plantar flexion and on another stimulation either of the same or of a different cutaneous area—a dorsiflexion—may be due to the easy fatigability as well as easy recovery from fatigue of muscle in early life, so that after a certain response has been obtained the muscles producing that response can no more contract as easily as the opposing groups of muscles, and the response is therefore produced by the less fatigued group of muscles.

(14) The reflexogenous zone is very diffuse in early infancy, and sometimes one is able to elicit a plantar reflex (either flexor or extensor) by stimulating a cutaneous area other than the sole when stimulation of the sole fails to evoke a response.

A CASE OF OESOPHAGECTASIA IN A CHILD.

By D. H. PATERSON, M.B.,

Medical Registrar and Pathologist, Hospital for Sick Children, Great Ormond Street.

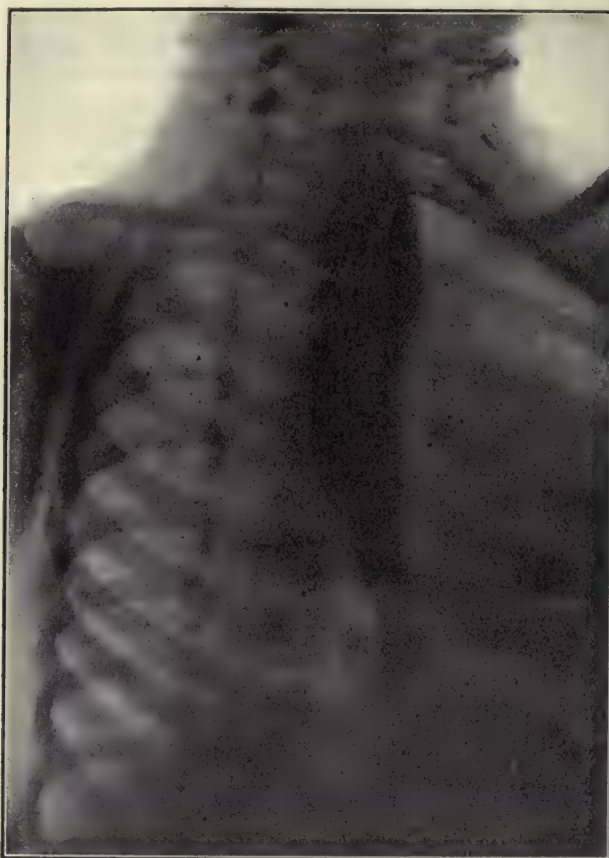
THE patient was an undersized and badly nourished child of 4½ years. The complaint was that he had vomited his food off and on since birth. He had been known to go as long as three weeks without a vomit, but this was rare. He usually vomited during his meal or immediately afterwards, and kept fluids down better than solids. The vomited food was brought back as it had been taken except, perhaps, with the addition of mucus.

He was admitted under Dr. Robert Hutchison in the Hospital for Sick Children, Great Ormond Street, in February, 1920. While

28 A CASE OF OESOPHAGECTASIA IN A CHILD.

in hospital he vomited off and on. He was given a bismuth meal and the bismuth passed readily into his stomach while being screened.

He was fed by means of a stomach-tube for the next few weeks and put on weight, and it was thought that with careful management by his parents all would be well.



Skiagram showing dilatation of the oesophagus above and constriction below.

In June, 1920, he was again admitted in a very dehydrated condition and vomited everything. Chloretone was given in small frequent doses and for several days he did not vomit.

Another bismuth meal was given and the child screened and a definite narrowing of the oesophagus was seen, as is shown in the accompanying skiagram.

A stomach-tube passed while under the screen showed that the tube merely curled up in the dilated œsophagus. As the vomiting continued and the child was rapidly wasting an exploratory laparotomy was performed by Mr. Tyrrell Gray, F.R.C.S., who passed his finger up the œsophagus through a small opening in the stomach wall but found no sign of a stricture. An œsophageal bougie passed readily into the stomach from above.

For the next three weeks the vomiting practically ceased and the child gained much weight, but had occasional vomits after this time when put on full diet.

This case is of interest, first because the condition was proved to be one of spasm, though the exciting cause was not determined, and secondly because of the early age at which the onset took place. Neither the administration of drugs or surgical intervention seemed of any avail, and careful feeding and nursing seemed to be the only beneficial treatment.

I must thank Dr. Robert Hutchison for allowing me to publish this case.

HYDATID DISEASE OF THE LIVER IN A CHILD.

By E. E. HUGHES, Ch.M., F.R.C.S.,

Visiting Surgeon, Manchester Children's Hospital.

A BOY, aged 11 years, was admitted to the Manchester Children's Hospital on account of a large hepatic swelling.

History.—It was not known how long the swelling had been in existence. The boy had been taken to a doctor some five months previously on account of a cold, and it was then discovered that he had an enlarged liver.

Condition on admission.—On examination the abdomen was larger than normal, there was considerable hepatic enlargement, and the liver dulness extended as low down as the umbilicus. The swelling was smooth, painless and cystic. Chest normal.

Treatment.—Under ether anaesthesia an incision was made through the right rectus, and on opening the peritoneal cavity the diagnosis was confirmed. The wound was packed all round with gauze swabs and the cyst aspirated with a long cannula. After the major portion of the fluid had been withdrawn the cyst was incised, and the remaining fluid, together with a number of daughter-cysts, removed. An attempt was then made to remove the endocyst, and, though very friable, it came away in almost one piece. The cavity was

then washed out with saline solution and dried. The margins of the opening into the cyst were sutured to the abdominal wall and the cavity drained with a rubber drainage tube.

The quantity of fluid removed was found to measure just over a pint, and contained on microscopical examination the characteristic hooklets.

After-treatment.—The wound was dressed under the most rigid aseptic precautions, but in spite of this it showed a tendency to suppurate although no organisms were discovered. Irrigation with weak formalin solution was continued for some weeks, and finally the wound healed, and has caused no further trouble.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, October the 22nd, 1920.

The President, Dr. FREDERICK LANGMEAD, in the Chair.

Overgrowth of Hair on Part of the Scalp.—Dr. FREDERICK LANGMEAD showed a male infant, aged 6 months, who was first brought to hospital when aged 9 weeks for the abnormal growth of scalp hair. He was in good health and otherwise normal. Over the occipital and right parietal regions was a mat of long, dark, silky hair, while the remainder of the scalp was covered by down of normal appearance and length. The normal hair was growing slowly. No treatment was being adopted. For cosmetic reasons much depended upon the colour which the normal hair was going to assume. The patient being a boy there should be no difficulty in rendering the abnormality inconspicuous.

Defective Development of Certain Neck Muscles.—Dr. FREDERICK LANGMEAD showed a female infant, aged 1 year and 5 months, who was brought to hospital because she could not sit up straight, the head fell forward and she was unable to stand. Examination revealed that though she could sit up for a very short period, her most comfortable attitude was a semi-reclining one, by which means the head could be kept vertical. The neck had a very scraggy appearance, owing to imperfect development of certain muscles. Of these the sternomastoids were conspicuously rudimentary, while the upper part of the trapezii was small. The short occipital-vertebral muscles appeared to be normal. The cervical vertebrae were unduly conspicuous, while the scapulæ were somewhat small. The condition had been present from birth and was unaccompanied by symptoms other than those of muscular inefficiency. There was a degree of general muscular hypotonia.

Cirrhosis of Liver.—Dr. FREDERICK LANGMEAD showed a girl, an only child, aged $5\frac{1}{2}$ years. The child was quite well until $1\frac{1}{2}$ years of age, when "marks" appeared on her face after a heavy fall. Immediately after the fall a bruise appeared on the forehead; this disappeared, but the dilated blood-vessels remained. Thereafter the condition spread over the face, and about last March appeared on the arms. Epistaxis occurred on four or five occasions during the summer of 1919, especially after exposure to the sun. Abdominal distension, varying in degree, was first noticed during last spring, and was sometimes accompanied by diarrhoea, the motions being very dark and containing mucus.

When admitted to hospital on May the 7th, 1920, the patient was seen to be plump, and appeared to be quite comfortable and free from symptoms. Over the face, and to a less extent over the forearms, there were numerous small dilated blood-vessels. The liver was enlarged, reaching about 1 in. below the costal margin, and was easily felt, its edge being hard and india-rubber-like in consistence; the left lobe appeared to be more affected than the right. The spleen extended for about $2\frac{1}{2}$ in. below the costal margin, and was firm and retained its normal shape. No ascites was present. There was no enlargement of lymphatic glands. The cardiac physical signs were normal, except for faint systolic bruits at the apex and base. Urine normal. A blood-count made was as follows: Red blood cells, 4,800,000; white blood cells, 7200; hæmoglobin, 65 per cent.; colour index, 0.7; polymorphs, 56 per cent.; small lymphocytes, 11 per cent.; large lymphocytes, 26 per cent.; large mononuclears, 1 per cent.; eosinophils, 4 per cent.; basophils, 1 per cent.; transitionals, 1 per cent. No abnormal cells.

The Wassermann reaction was negative on two occasions, and after the use of a provocative dose of arsenobenzol. No history of alcohol.

During her stay in the hospital for one month a slight jaundice developed, but she remained otherwise free from symptoms.

Rhythmical Involuntary Movements.—Dr. FREDERICK LANGMEAD showed a male child, aged 2 years and 8 months, who was admitted into hospital in February, 1920, for inability to sit up, stand or talk, and because he could not keep still. He was the only child of healthy parents, and was born at full term by an easy labour. The mother had no accidents or illnesses during the pregnancy. At birth he appeared to be healthy and weighed 7 lb. With natural feeding he thrived and put on weight. The first tooth appeared at the age of one month. When between 2 and 3 months old he was suspected of being abnormal by his mother because he was very quiet and inactive, and for six months he lay "like a doll" in bed or in his mother's arms. Though conscious he moved neither his legs nor his arms, neither cried nor smiled and took no interest in his surroundings.

When about 6 months old he began to use the right arm, moving it in a jerky way, and also to move his legs. At this age, too, he began to take some notice and to cry. From that time there had been a gradual increase in movements of the limbs, those on the right side being moved more than those on the left. He had never been able to hold his head up, to sit up or stand, and had never learnt to talk. When 15 months old he had an acute illness, diagnosed as pneumonia, which continued for six weeks and was followed by a good recovery. Since this illness the restless jerky movements of the limbs had been more obvious. Up to his admission he had had no convulsions nor periods of unconsciousness or drowsiness.

On admission he was found to be practically normal in physical develop-

ment, he ate and slept well and appeared to be in no pain or discomfort. It was clear, however, that his intellectual functions had not developed. Though bright in appearance he failed to understand the simplest word. He cried with painful stimuli, or if hungry or interrupted during a meal, but expressed no other emotions, and made no attempt to speak. There was no cranial nerve paralysis. Motor power was weak, for he could neither sit, stand nor crawl, and if placed on his belly could not roll over. There was no marked hypotonia nor wasting; there were no contractures nor rigidity. The most striking feature was constant involuntary movements of the limbs, rapid, purposeless and jerky in character, and somewhat resembling those of chorea. The sudden interposition of shock-like movements afforded, however, a distinction. There was also constant grimacing and twitching of the mouth. All the limbs moved wildly, the body continually wriggled and squirmed and the head moved restlessly.

Reflexes.—The knee-jerks, the tendo Achillis jerk and the tendon reflexes of the arms were very active. The plantar response was flexor on both sides and the abdominal reflex normal.

There were no changes in the fundi except paleness of the retinae. Apart from the neuro-muscular system there were no abnormalities. The cerebro-spinal fluid was normal, and the Wassermann reaction both in the cerebro-spinal fluid and blood was negative.

Since he was discharged at the end of March he had been kept under observation in the out-patient department, and it had been seen that the movements varied considerably in their activity from time to time. There had been attacks of rigidity on the right side, accompanied by pallor on the same side, according to the mother. During these seizures the right leg was drawn up. The movements were controlled to some extent by chloral and bromide.

Case of Severe Anæmia.—Dr. H. CHODAK GREGORY showed a female child, aged 1 year and 5 months, who first came under observation nearly two months ago, having become pale, lost appetite and been drowsy during a month before admission. Vomiting had occurred once or twice; the stools were pale in colour and offensive; there had been no hæmorrhages. She was breast-fed for three months, then fed on Nestlé's milk. No tuberculosis in the family and nothing to suggest syphilis; seven other healthy children.

The child was well-grown and well-nourished. Anæmia was marked, the skin being of a greenish-yellow colour; there was no true jaundice and no petechiæ were present. The spleen was greatly enlarged, the lower pole reaching down to the level of the umbilicus, the anterior border to half-way between the umbilicus and costal margin. The liver was also enlarged, the lower border being felt two finger-breaths below the costal margin in the nipple line. There was no evidence of lymphatic glandular enlargement except for a few small cervical glands, which could easily be accounted for by pediculi and a dirty scalp. The heart and lungs were normal. The urine was pale, acid, contained no albumin nor sugar and no urobilin; it was sterile on culture. Stools pale, otherwise normal; no occult blood, no ova.

The blood-count on admission showed: Hæmoglobin, 10 per cent.; red cells, 3,250,000; colour index, 0.16; white cells, 1880; polymorphonuclears, 36.5 per cent.; small lymphocytes, 53 per cent.; large lymphocytes, 5.5 per cent.; large hyalines, 2.75 per cent.; eosinophils, 1.75 per cent.; mast-cells, 0.5 per cent. Six normoblasts were seen while counting 400

white cells. The fragility of the corpuscles was found to be equal to normal blood. Temperature, 100° F. Wassermann reaction negative.

Three days later the blood-count showed a decrease of reds to 2,400,000, a slight increase of whites to 2380, the proportion of whites remaining much the same, but with the addition of 5 per cent. myelocytes; only one normoblast was seen in this count.

The general condition became steadily worse, the temperature was raised every night and the pulse was rapid and weak; there was considerable dilatation of the right side of the heart and pulsation of neck veins.

On the eighth night after admission the child collapsed suddenly and seemed to be dying, so without waiting for any special examination of the mother's blood a transfusion was done immediately: 20 c.c. of blood in 10 per cent. sodium citrate were injected into the child's left external jugular vein. She patient improved a little during the night, and four days later another transfusion, this time of 10 c.c. of blood, was made, a light ether anaesthesia being used on this occasion to avoid the fright and struggling.

From that time improvement had been steady. The colour was healthier, and the general condition progressively better (the appetite never failed even at the worst time). The spleen and liver were perhaps slightly diminished in size, but there was no great alteration.

The blood picture seven weeks after admission showed: Hæmoglobin, 30 per cent.; red cells, 4,500,000; white cells, 14,500; polymorphonuclears, 41 per cent.; small lymphocytes, 34 per cent.; large lymphocytes, 12 per cent.; large hyalines, 7 per cent.; myelocytes, 5 per cent.; eosinophils, 0. No nucleated red cells seen.

Apart from the transfusion, treatment had been limited to small doses of iron and arsenic and some camphor injections when a stimulant was needed.

Transposition of Viscera accompanied by Congenital Heart Disease.—Dr. BERNARD MYERS showed a male infant, aged 1 year and 4 months, who had been admitted to hospital on July the 30th last. The mother stated that he had been "blue since birth and short of breath." He had attended the Royal National Orthopædic Hospital for club feet. He had been fed on baked flour, cow's milk and water. His weight was 17 lb.

Upon examination the face was slightly dusky and lips cyanosed, but not markedly. The heart was found to be on the right side and also the spleen. The liver was evidently transposed to the left side and could also be percussed out. Above the liver the left lung was resonant. The apex-beat appeared to be situated in the right nipple line, fourth space. Dulness extended up to the second right space and to about $\frac{1}{2}$ in. to left of sternum. A systolic murmur was heard in the second right space close to the sternum, and what appeared to be (?) another murmur had its point of maximum intensity over third right costal cartilage $\frac{1}{2}$ in. from sternum. Both murmurs were evidently systolic.

The child was admitted to the wards under Dr. C. O. Hawthorne, who agreed with the diagnosis of "transposition of viscera" with congenital heart disease, probably pulmonary stenosis and patent interventricular septum. The diagnosis of transposition of viscera was confirmed by X rays.

The patient was discharged on August the 28th, 1920, and readmitted on October the 1st. The condition was much the same, but there was now heard a systolic murmur at the apex which appeared to be conducted to the right axilla. The former murmurs were still heard, the area of maximum intensity being the third right costal cartilage $\frac{1}{2}$ in. to the right of sternum.

The child was intelligent, and took an interest in things about him quite normally.

Fracture of the Pelvis with Dislocation.—Mr. B. WHITCHURCH HOWELL showed a boy, aged 7 years, in whom this injury was due to being knocked down by a motor car. The X rays showed a fracture of the ilium in the region of the sacro-iliac joint, with downward dislocation of the sacrum, together with a fracture of the pubes near the symphysis. The lumbar spine was normal. The symptoms were very few, there being no urinary disturbance, no injury to the sacral plexus and only slight deformity.

Congenital Deficiency of the Subcutaneous Fibrous Tissue associated with Nodules due to Dilated Arterioles.—Dr. F. J. POYNTON and Dr. D. PATERSON showed a boy, aged 5 years, whose skin, since birth had appeared too large for his body. Family history: An only child; no history of abnormalities present. His previous health had always been good. On admission to hospital he was found to be in every way healthy and normal apart from the skin condition. The impression obtained on picking up the skin was that it was very loosely attached to the underlying fascia. On the lower limbs there were large scars, thin, soft and redundant, and apparently lacking in cicatricial elements. The laxity of the skin was not uniform, but was most conspicuous over the extremities, least over the face and trunk. The hands and feet had a peculiar pad-like feel. There was nothing peculiar about the nails. The forearms and legs were more affected than the arms and thighs. Small subcutaneous millet-seed nodules were felt along the shins and extensor surface of the ulnæ. These nodules were movable and not tender, and about six of them were detected. A section made from the skin and subcutaneous tissue showed an almost entire absence of the fibrous trabeculæ binding the true skin to the normal tissues. Sections through a nodule removed showed it to be an aneurysmal condition situated on a small arteriole, the surrounding supporting connective tissue being deficient at this point. No inflammatory changes either of endarteritis or periarteritis could be made out. The nodules were found over areas exposed to injury, and frequently were due to this cause; the free bruising of the skin might also be explained by the imperfect protection of the subcutaneous vascular system.

Cataract in a Mongolian Idiot.—Mr. H. ROWE JEREMY showed a baby who had been admitted to hospital when three weeks old with the history that the nurse noticed the pupils were white a week after birth. The mother was a poorly-nourished Jewess, and had had four previous children, who were healthy and had no eye trouble. The child was a boy, and a Mongol in appearance. The eyes were small and had a coarse lateral nystagmus. The corneæ were of normal size in ratio to the size of the eye, and there were no posterior synechiæ. The pupils were regular and equal, and reacted to light. Both discs were totally opaque. The cataracts did not resemble any of the usual types of congenital cataracts; they were densely opaque, and more opaque in the centre than the periphery. The central opacities were studded with irregular projections of a whiter hue. There was no red reflex by transmitted light, and the fundus oculi could not be seen.

SECTION OF DERMATOLOGY.

October the 21st, 1920.

Pityriasis Lichenoides.—Mr. HALDIN DAVIS showed a case in a boy, aged 11 years, who had had the disease since he was three months old.

Post-vaccinal Psoriasis.—Dr. G. PERNET showed a girl, aged 16 years, who had been vaccinated for the first time below the insertion of the left deltoid four months previously. Two months later, while the scabs were still present on the vaccinated areas, psoriasis appeared. Round the two recently scarred vaccination areas, each $\frac{3}{4}$ in. in diameter, there were two concentric rings of scaly psoriasis papules, one immediately round the borders of the scars, and one a little farther out. The latter rings had coalesced, leaving a transverse figure of eight. The extensor surfaces of the forearms and hands exhibited profuse psoriasis more or less *en nappe*. The elbows were also involved, and on the front of the knees a few discrete typical nummular lesions were present. At the time of the vaccination process all the fingertips festered, but this had cleared up. Both the girl and her mother asserted that there had never been any trace of a rash before the vaccination.

Case for Diagnosis.—Dr. S. E. DORE showed a girl who had had an eruption of small, closely aggregated follicular papules about the size of a pin's head, leaving small scars with a few pustules on the forehead, cheeks and chin for nine months. Its onset was preceded by flushing of the face for about three months and there were some symptoms of rosacea at the present time. On pressure under a glass the lesions showed definite brown points similar to the deposit seen in lupus vulgaris, and Dr. Dore's view had been that the condition was allied to the acnitis of Barthelemy, Radcliffe-Crocker's acne agminata, or the disseminated follicular lupus of Tilbury Fox. Dr. Pringle, however, claimed it to be an instance of the eruption he had described under the title of "a peculiar seborrhoeide" of the face, and the characters of the eruption and the associated symptoms of rosacea seemed to confirm that diagnosis.

Case for Diagnosis.—Dr. DORE also showed a girl, aged 9 years, with an eruption on the face, arms and legs which had been present in an acute form for six months with slight attacks in the summer for five years previously. She had been sent to Dr. Dore as a case of staphylococcic infection, and a few weeks ago the arms and legs were covered with pustules. The initial lesion was a deep vesicle, which became pustular and left a small pitted scar. The eruption was mainly on the exposed parts and was definitely affected by sun and heat, particularly heat. Dr. Dore regarded it as an example of hydroa æstivale. She was being treated with quinine ointment and quinine powder according to Darier's prescription, with a view to intercepting the chemical rays of the sun, but the condition could not be entirely attributed to ultra-violet rays, because it was like most of the cases excited by heat and by cold winds. One ulcer of the leg was treated by ultra-violet rays, and instead of being aggravated the eruption had decidedly improved. There were no other children in the family similarly affected.

November the 18th, 1920.

Case of Urticaria Pigmentosa with Bullous Lesions.—Dr. J. M. H. MACLEOD.—The patient was a boy (first-born), aged 9 months, born at full time, and breast-fed. There was no history of any such skin disease in the parents. The disease appeared at the age of three months. The eruption was acute and belonged to the mixed type of urticaria pigmentosa, as both macular and nodular lesions were present. The eruption had first come out on the back, then spread over the body, and had been increasing ever since, new lesions tending to come out in crops. It was now widely distributed over the whole cutaneous surface, except the palms and soles, but including the scalp, and was specially profuse on the trunk and proximal parts of the limbs. There were no lesions on the mucous membranes. Some of the lesions were not palpable, while others were definitely raised; they were pale fawn in colour, irregular in outline, and varied in size up to patches or plaques several inches across. In addition to the more typical lesions there were variously-sized wheals which were whitish and surrounded by pinkish halos, and vesicles and bullæ were present varying in size from a split-pea to blebs an inch in diameter. The initial lesion appeared to be either a wheal or a bulla. The lesions caused much itching, especially at night, and there was well-marked dermographism. There was no general glandular enlargement. In spite of the extent of the eruption the general health was excellent. The acuteness of the eruption pointed to a toxic rather than a nævoid condition, and suggested the possibility of the disease being due to some foreign protein which was responsible for the urticaria, the bullæ, the pigmentation, and the peculiar cellular infiltration of mast-cells which were seen in a piece of tissue excised.

Pityriasis Rubra Pilaris.—Dr. S. E. DORE showed a child, aged $3\frac{1}{2}$ years, in whom scaly patches followed by a nutmeg-grater condition of the skin were first noticed about six months ago. There were numerous scaly patches on the trunk and limbs, and marked prominence of the follicles on the extensor surfaces of the arms and legs. The horny plugs generally present on the back of the phalanges in adults were absent. The scalp and palms were dry and scaly, and the nails, especially of the toes, were thickened and striated. The child had been born in India, and had recently lived in Australia. The mother suffered from leucoderma of old standing, and an uncle was said to have psoriasis. A brother and sister were healthy. Dr. Dore stated that there were less than ten cases on record in which psoriasis began under the age of two and a half years, and the same was probably true of pityriasis rubra pilaris.

Case for Diagnosis.—Dr. A. WHITFIELD showed a boy, aged $8\frac{1}{2}$ years, whose case was very difficult to diagnose when first seen. Since he was a baby he had had a cough, and for sixteen months had been under dispensary treatment. There was no wasting nor traceable signs of tuberculosis. Three years ago an eruption began on the left shoulder, and the story was that since the commencement of the eruption no lesion had disappeared. The type of lesion was a distinctly infiltrated, tough, hemp-seed-like papule with practically no divergence from the normal colour of the skin. It might be a very slow benign tuberculosis, or it might be a slightly hyperkeratotic morphæa. A biopsy showed that it was a typical lichen planus.

SECTION OF LARYNGOLOGY.

November the 5th, 1920.

Case of Giant-cell Systems in a Tonsil.—Mr. W. M. MOLLISON showed a boy, aged 6 years, who had been sent to him for enlarged glands in the neck. The tonsils were buried, but did not appear different from the majority of tonsils in young children. The tonsils were enucleated and did not present any unusual features. Sections of one tonsil showed numerous tuberculous giant-cell systems.

December the 3rd, 1920.

Dentigerous Cyst (Follicular Odontoma) of the Upper Jaw.—Dr. DOUGLAS GUTHRIE.—The patient was a boy, aged 8 years, who, seven months before coming to hospital, while drinking from an iron cup was jostled by another boy, so that the cup struck his upper lip forcibly. A few weeks later a swelling was noticed beneath the lip on the right side, and this had gradually increased in size. On evertng the lip the swelling was seen over the roots of the teeth from the first bicuspid to the middle line. It was painless, smooth and sharply circumscribed, and on palpation a "parchment sensation" was elicited. A horizontal incision was made, the mucosa reflected, the thin anterior bony wall removed, the cyst separated and removed entire, leaving a bony cavity the size of a walnut. The cyst contained the crown of a tooth, and another tooth in process of development was found lying loose in the bone-cavity after removal of the cyst. A large opening was made through the roof of the cavity into the nose. Bipp was applied and the mucosa stitched. Recovery was uneventful. The points of interest are: (1) Probable traumatic origin; (2) relative rarity in upper jaw; (3) completeness of specimen (as a rule adherent and therefore destroyed during removal).

Chronic Superficial Abscess of Left Frontal Sinus.—Mr. ARCHER RYLAND.—A boy, aged 15 years, who had had some nasal obstruction for two or three months, complained of nasal stuffiness with occasional aching pain in the forehead. Some nasal polypi were found in each middle meatal region. There was no frontal swelling, and nothing to direct attention to the frontal sinuses. The nasal polypi were removed, but two months later the patient reappeared with a frontal swelling which had appeared ten days previously. Examination showed reformation of nasal polypi right and left, a centrally placed frontal tumour, soft, fluctuating and painless with no oedema. A frontal sinus cannula was passed readily into the left frontal sinus. The frontal sinuses were dark on trans-illumination. Pus was evacuated on incising the skin. The periosteum was found stripped in places, sloughing and oedematous, a fistula was made through the anterior wall of left frontal sinus, the opening was enlarged by removal of diseased bone round its edges, a rubber drain was placed in the nostril, and the external wound completely closed. Films of the pus showed staphylococci.

Case of Congenital Laryngeal Web.—Mr. R. A. WORTHINGTON showed a girl, aged 10 years, whose vocal cords were united in their anterior half by a pinkish, slightly translucent web. The symptoms chiefly complained of were hoarseness of the voice and dyspnoea on exertion. According to StClair Thomson only twenty-three such cases were on record.

SECTION OF MEDICINE

November the 23rd, 1920.

Case of Transposition of the Viscera, showing a Potentially Bicameral Heart.—Prof. ARTHUR KEITH and Mr. J. J. MACDONNELL. A girl, aged 7 months, was admitted to hospital for symptoms suggestive of bronchitis. The mother had noticed soon after birth that the heart was beating on the wrong side of the chest and medical examination showed that there was complete transposition of viscera. There was some slight cyanosis and dyspnoea, and a diagnosis of congenital heart disease was suggested. The respiratory symptoms became accentuated and it was thought that the child was suffering from the bronchitis, which had affected other members of the household. On admission to hospital the child was slightly cyanosed, the *alæ nasi* were working freely, and the breathing was characteristic of broncho-pneumonia in children. The cardiac area of dullness lay to the right of the sternum and appeared to be of normal size; no murmurs were heard; scattered rhonchi were heard over both lungs, and the breath-sounds at the right apex were a little harsher than usual. Below the costal margin a mass was felt reaching lower on the left side than on the right; it had the characteristic sharp lower edge of the liver. There was no clubbing of the fingers. The cough persisted, and at the end of the third day the child became much more cyanosed, sweated profusely and died. The clinical diagnosis lay between congenital heart disease complicated by miliary tuberculosis, and capillary bronchitis. Although the symptoms and signs suggested an infection of the lung, the temperature throughout was normal or subnormal, and despite the cyanosis no murmurs indicative of the commoner forms of congenital heart disease were present.

Autopsy.—The heart was found to the right of the middle line. The lungs were free from disease and showed two lobes only on each side. The liver was greatly enlarged and showed nutmeg changes. The gall-bladder lay to the left of the middle line; the stomach and spleen were transposed to the right side and the spleen was apparently of normal size; the rest of the alimentary tract was completely transposed, the appendix lying in the left iliac fossa. Examination of the heart by Prof. Keith showed that all the blood from the lungs and from the body was received in one chamber of the heart—the systemic (normal right) auricle. From that auricle it entered the left ventricle, and that chamber served as a pulmonary and systemic pump, the only blood reaching the systemic circulation being that which passed into the aorta by a constricted ductus arteriosus. The two other chambers of the heart, the pulmonary auricle and right ventricle, although fully developed, did not appear to have taken any part in carrying on the circulation.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

November the 4th, 1920.

The Results of Anti-syphilitic Treatment of Pregnant Women and Newborn Infants.—Mr. JOHN ADAMS reported the results of all cases treated during the past three years at the Thavies Inn Venereal Centre for Pregnant Women. In each year the percentage of babies born with a negative Wassermann reaction had increased. Mr. Adams attributed the

result to the more active treatment the mother received before confinement and the more general use of salvarsan in pregnant syphilitic women than formerly. Most of the mothers entered the Thavies Inn Centre about the sixth month of pregnancy, having been sent there with a diagnosis of syphilis made either on clinical evidence or on the results of the Wassermann reaction. Some had been treated with mercury and arsenic and in consequence had no obvious lesions; others had had no treatment whatever. Practically all were in the secondary stage of the disease. The results of treatment had been most encouraging, though they naturally varied with the period before confinement at which it was begun. In the last two years there had been only one stillbirth and no deaths from syphilis among the cases treated. Mr. Adams's experience had been that if the mother's Wassermann test could be converted to negative or "doubtful" at her confinement the baby would be born negative and show no signs of syphilis. If the mother was positive or strongly positive, the baby would probably be positive too, in which case vigorous antisyphilitic treatment would be begun at once. None of the babies born negative became positive, nor developed any signs of syphilis, though many had not had any treatment beyond the drugs they absorbed through their mother's milk. Mr. Adams was of opinion that a pregnant woman with syphilis, whether active or latent, if treated for three or four months before confinement would probably be delivered of a healthy child at full term.

SECTION OF OPHTHALMOLOGY.

November the 12th, 1920.

Plexiform Neuroma.—Mr. FRANK JULER showed a boy, aged 15 years, who had had swelling of the upper eyelids for many years, increasing recently. There was fibromatosis of both upper lids, right frontal region, right and left temporal fossæ and right occipital region. There were plexiform trunks in the upper lids, with increase in size of supra-orbital notches. There were pigmented patches on the skin of the trunk and thighs. Right eye: Buphthalmos; horizontal diameter of cornea, 13 mm. sph.—5.5 cyl.—6.5. Fundus showed patches of myopic choroidal atrophy. Left eye: $\frac{6}{30}$; myopic, sph.—6, cyl.—6; cornea 11 mm. diameter; tension normal. Pulsation in both orbits, L.>R.

SECTION OF OTOTOLOGY.

November the 19th, 1920.

Streptococcal Lepto-meningitis in a Child due to Chronic Suppurative Otitis Media.—Mr. SIDNEY SCOTT.—The patient, a girl, aged 10 years, was admitted to hospital in a state of unconsciousness with purulent discharge from the left ear. The ear discharge had been noticed for several months, but had caused no sign of ill-health until about a week before, when earache was first complained of, and was followed a few days later by vomiting and shivering. On admission to hospital the temperature was 104° F., the pulse 130, and respirations 30. The head was retracted, and there was definite extensor rigidity of the hamstrings. There was a purulent discharge from the left ear. There was no swelling or tenderness

in the mastoid region. Both eyeballs showed marked rotatory nystagmus. As it was considered that otitis media had led to involvement of the labyrinth the radical mastoid operation was immediately performed. The mastoid antrum and cells contained pus, granulations and cholesteatomatous material. A carious patch of bone led back to a paranasal extradural abscess containing nearly a drachm of pus. The external semicircular canal was not eroded, and though no channel of infection to the labyrinth was identified, an opening into the vestibule was made below the facial nerve; the cochlea was extirpated in order to open up the fundus of the internal auditory meatus and establish translabyrinthine drainage. The cerebrospinal fluid then welled up freely for a moment, leaking away more slowly afterwards. The wound was packed open with dressings. The spinal theca yielded about 10 c.c. of turbid cerebro-spinal fluid on lumbar puncture, which was found to contain streptococci. Lumbar puncture was repeated at intervals of twelve hours during the next few days, the fluid becoming gradually less and less turbid until the fourth day, when it was reported to be "straw-coloured, clean and sterile." The day after the operation the temperature fell to 99° F., and did not rise again above 100° F. On the third day the flow of cerebro-spinal fluid from the labyrinth ceased and consciousness began to return. Henceforward recovery was practically uninterrupted, though there was temporary facial paralysis and slight jaundice, and for a few days there was headache but no pyrexia. The nystagmus, which was unaltered by the operation, gradually became less and less noticeable. The wound closed in the fourth week, and the patient was discharged from hospital at the end of six weeks.

SECTION OF SURGERY: SUB-SECTION OF ORTHOPÆDICS.

October the 5th, 1920.

Functional Results of Successfully Reduced Congenital Dislocation of the Eye.—MR. E. LAMING EVANS, in his presidential address, described the present functional results and X-ray findings of some cases which he had operated on in 1910 and had been able to trace. The four main principles of treatment resulting from observations during the course of the inquiry were (1) reduce early, (2) reduce gently, (3) retain concentrically, (4) encourage early function.

Muscular Dystrophy in a Boy, aged 7 years and 9 months.—MR. P. B. ROTH.—Nothing wrong was noticed until the child began to walk at 13 months, when he "rocked" very much, and in getting up from the ground "used to put his hands on his knees as if he were an old man." On examination paresis of all the muscles of the lower extremities and those of the shoulder girdle in the upper extremities was found. He was only just able to stand in a double genu valgum position, with the two knees together, the two feet wide apart, and the two hands placed on the two knees. When put supine on the floor he was just able to roll over into the prone position, and very slowly and gradually wriggle and draw himself into the standing position by means of a chair, taking two minutes for the whole process and expending a great amount of energy. There was no fibrillary twitching, the condition did not seem to be getting worse, and the boy's intelligence was above par.

Mr. Roth had lengthened the tendo Achillis of each foot, as it had become contracted, and had fitted him with a pair of Thomas's calliper knee-splints, which enabled him to stand erect in comfort and to get about the room with much greater ease than before.

Deformities associated with Chronic Nephritis.—Mr. H. A. T. FAIRBANK showed a girl, aged 13 years, who had had bowing of the legs for one year. There was no history of rickets in early childhood, and there were no rickets or deformities in the family. On examination the girl was found to be 4 ft. 9 in. high (only $\frac{3}{4}$ in. below the average). There was a genu valgum affecting both legs, the curve taking place principally in the tibiae just below the upper extremities. The lower epiphyses of both tibiae and fibulae were somewhat enlarged. The right leg was $\frac{3}{8}$ in. shorter than the left, the shortening involving all portions of the leg. There was nothing else abnormal in the legs, except that flexion was slightly limited in the right hip, and the right hip could not be carried across the abdomen. The upper limbs were normal, except for the forearms, which were both shorter than normal. Both bones of the forearms were curved, the radius outwards, the ulna backwards, and the distal portions were slightly enlarged. There was limitation of pronation and supination, particularly the latter, on both sides. There was some limitation of movements in the wrist-joints in the direction of flexion and abduction. There was no beading of the ribs. X-ray examination showed some distortion of the upper epiphysis of the tibia and a fairly abrupt curve in the juxta-epiphysal region of the shaft. On each side there was a crack running into the shaft on the outer side for $\frac{3}{4}$ in. or so. The cracks were nearly parallel to the adjacent portion of the epiphysal line, and distant from it $\frac{1}{2}$ in. in one leg and $\frac{3}{4}$ in. in the other. The radius on each side showed a fairly abrupt curve, convex outwards, at the junction of the middle and lower thirds, with some diffuse thickening. The ulna had a less marked and more gradual curve, convex backwards, the lower end being displaced somewhat forwards in front of and overlapping the carpus. The epiphysal lines were sharp and narrow, but somewhat irregular. The radial epiphysis was distinctly wedge-shaped, with the base outwards, the carpus being pushed over towards the ulna so that the two overlapped, the ulna in front and the carpus behind.

Pseudo-coxalgie.—Mr. H. A. T. FAIRBANK showed a boy, aged 8 years. Four months ago he had been knocked down by a bicycle, and the rider fell upon him. The left foot was bruised. One month after the accident he began to limp on the left leg, and had complained of some pain in that leg. The limp was getting worse. On examination both legs were equal in length, there was slight wasting of the left thigh, marked limitation of the abduction of that hip, with some limitation of internal and external rotation, but flexion was free almost to the extreme limit. Extension was obliterated. The trochanter was normal in position, and there was little, if any, thickening in the region of the head and neck of the femur. There was no pain on percussion. Trendelenburg's sign was positive. The left foot was slightly shorter than the right. The Von Pirquet reaction was negative. The Wassermann reaction was doubtful, probably weakly positive. No source of possible infection was found. The urine was negative. X-ray examination showed typical changes indicating pseudo-coxalgie. The head centre of the femur was flattened and irregular, the epiphysal line was irregular, and there were two clear spots, close together, with a sharply defined dense wall,

in the neck of the bone near the centre of the epiphysial line, but separated from it by $\frac{1}{4}$ in. of normal bone. The acetabulum showed some irregularity of surface. The neck of the femur was slightly thickened. There was asymmetry of the pelvis, the left side being smaller. The range of movements had slightly increased with the few days' rest since admission to hospital, but there was now some slight fixed flexion. The clear spaces in the neck appeared to be too sharply defined—with a thin shell of condensed bone around—to be due to tubercle or other inflammatory process. A walking calliper splint had been ordered for the boy.

November the 2nd, 1920.

Multiple Congenital Deformities.—MR. E. LAMING EVANS showed a boy, aged 15 years, with congenital dislocation of the knees, with associated deformities at the elbows, hips and ankles. The boy was somewhat backward, somnolent, but good-natured. He could stand and walk short distances without help, but his normal mode of progression was by crutches. X rays showed that the joint was locked by contact of the posterior surface of the tibial condyles against the anterior surface of the femoral shaft above the normal cartilaginous surface for the patella. When the patient was recumbent the whole limb was rotated outwards at the hip-joint, and gave the case the appearance of a valgoid condition, but the two femoral condyles could be clearly felt upon the inner side. The patella was present on both sides. The hip-joints showed narrow acetabula. Both femoral heads could be subluxated by manipulation. The heads of both radii were dislocated forwards and upwards. It was proposed, after obtaining plantigrade feet, to treat the case by excision of the knee-joints.

Case of Paralytic Subluxation of Hip with Paralysis of Adductors.—MR. H. A. T. FAIRBANK showed a girl, aged 4 years, who had had an attack of poliomyelitis at the age of four months. She had never walked, but could sit up. She lay with the pelvis tilted upon the right side. There was a lumbar curve to the left with well-marked rotation. There was some bulging in the left loin due to weakness of the abdominal muscles on that side. The right leg seemed to be completely paralysed, including all muscles about the hip-joint, with the possible exception of the rectus femoris. The head of the femur was subluxated on the upper lip of the acetabulum, but could be restored to its normal position with a definite slight snap. Adduction was slightly limited as compared with the other side, but abduction was excessive. There was no response to faradism in any muscles of the right leg. The ankle was flail. The left leg was also severely affected, but the adductor longus was the only adductor acting. The hamstrings and gastrocnemius were acting. There was an equinovarus which was in process of correction. X rays confirmed the diagnosis of partial subluxation of the right hip. There was nothing to suggest that the displacement was congenital in origin. Both erector-spinae muscles reacted to faradism. The case was shown on account of the rarity of paralytic dislocation of the hip, and more particularly because the displacement seemed to have occurred without adequate cause.

Internal Derangement of the Right Knee-joint.—MR. B. WHITCHURCH HOWELL showed a boy, aged 8 years, who was struck on the front

of the right thigh above the patella by a cart-wheel. Much synovitis followed. He was treated by a compression bandage and gutter splint. When the fluid had subsided it was discovered that he could not get his knee quite straight, and any attempt to do so passively was painful, especially behind and on each side of the ligamentum patellæ, where the tissues were thickened. There was no abnormal mobility. There was full flexion, but about 10 degrees short of complete extension. There was a slight check on attempting full extension, and a slight limp and pain behind the ligamentum patellæ on jumping. X rays showed injury to the bone of the fore part of tibial plateau, chiefly in the middle line, suggestive of a loose body, discoid in shape.

Abstracts from Current Literature.

Diseases of the Newborn.

A case of ophthalmia neonatorum before birth (*'Lancet,'* 1921, i, p. 122).—**G. H. G. Dundas** reports a case in a child who was found to have ophthalmia neonatorum at birth. The lids were red and oedematous and pus was discharging from both eyes. Intracellular diplococci were found in the pus. The case was evidently one of intra-uterine infection made possible by draining away of the liquor amnii. The mother had had a purulent discharge throughout pregnancy. The child was healthy at birth apart from the eyes, but on the third day began to refuse its feeds, twitching of the facial muscles occurred, and death took place on the tenth day. The autopsy showed intense injection of the pia mater and a purulent exudate on the middle of the base of the skull, extending from the optic commissure backwards. There was no disintegration of the globe of either eye.

J. D. ROLLESTON.

Congenital cyanosis (*'Arch. de méd. des enf.,'* 1920, xxiii, p. 292).—**Variot and Bouquier** report four cases of cyanosis in newborn infants which resembled each other in their clinical appearances, the cyanosis being generalised and very pronounced, and presenting paroxysms during bottle-feeding. All four children showed a certain degree of congenital debility. No murmurs were heard. A radioscopic examination of the children showed an enlargement of the cardiac area in the region of the right auricle. Three died in the first ten days of life, and the fourth when a fortnight old. The autopsy showed in all four cases a patent ductus arteriosus and almost identical pulmonary lesions consisting in congestion with pronounced consolidation of most of the pulmonary parenchyma. On the surface of the lungs there were extensive patches of cortical emphysema as in death from asphyxia. The writers remark that the absence of a murmur on auscultation is not peculiar to persistence of the ductus arteriosus, for it has been noted in a considerable number of very varied malformations in which the infants survived only a short time.

J. D. ROLLESTON.

Cyanosis in the newborn (*'Arch. of Ped.,'* 1920, xxxvii, p. 666).—**F. Cohen** has drawn up the following classification of cases of cyanosis in the newborn: (1) Labour processes, which include prolonged labour, cord

about the neck, premature separation of the placenta, placenta prævia, prolonged anæsthesia during labour, then asphyxia of the newborn due to twilight sleep or that following pituitrin, and in intracranial or cerebral hæmorrhage. (2) Developmental causes, viz. pulmonary atelectasis, congenital heart defects, thymus hyperplasia, diaphragmatic hernia and other rare congenital anomalies, such as congenital goitre and lymphangioma. (3) Sepsis, associated with peritonitis, pneumonia, arthritis, osteomyelitis, septic condition of the cord, etc. Winckel's disease is probably of septic origin.

J. D. ROLLESTON.

Encephalitis neonatorum (*Norsk Mag. f. Lægevid.*, 1921, LXXXII, p. 25).—P. Harbitz records the case of a premature infant which was born after thirty weeks' pregnancy and lived fourteen hours after birth. There were no signs of congenital syphilis. There were, however, a cirrhotic liver with jaundice and ascites, bilateral nephritis, hæmorrhages in the skin, kidneys and peritoneum, as well as considerable hæmorrhages in the meninges, probably caused by an aneurysm of a branch of the Sylvian artery. There was also internal hydrocephalus due to partially calcified necrotic areas in the central ganglia and cerebral cortex. The ætiology of the condition was obscure. Harbitz regards the disease as a degeneration and necrosis possibly connected with an abnormality of the blood-vessels. He also reports a case of syphilitic encephalitis in a child aged 7 weeks, which showed syphilitic encephalitis of the blood-vessels of the base of the brain, with numerous areas of softening and internal and external hydrocephalus.

J. D. ROLLESTON.

Subcutaneous emphysema in an infant three days old (*Amer. Journ. Dis. Child.*, 1920, xix, p. 388).—H. K. Faber states that subcutaneous emphysema occurring spontaneously during the first days of life is extraordinarily rare. He has found only two other cases recorded in the literature, both reported by Guillot. (Reference should also be made to Wilkins's case, *vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1911, viii, p. 70.) In Faber's case subcutaneous emphysema of the upper chest and neck was found on the morning of the fourth day of life. No abnormalities in the heart or lungs were discovered and there was no sign of fracture of any of the bones. Treatment consisted in keeping the baby as quiet as possible. The swelling remained stationary for about three days and at the end of seven days had diminished by half and wholly disappeared in another eight days. The condition was possibly due to obstruction of the nose by the bedclothes during respiration, and rupture resulted from excessive negative pressure in the lung.

J. D. ROLLESTON.

Umbilical hæmorrhage in the newborn (*Journ. de méd. et de chir. prat.*, 1920, xci, p. 743).—Y. le Cars states that this is a rare occurrence, of which two forms may be described: (1) Early hæmorrhage due to inadequate ligature or rupture of the cord at the time of delivery or owing to a congenital anomaly; (2) secondary hæmorrhage, which is less rare, is due to interference with the coagulability of the blood due to some infection or toxic congenital cause. The origin of these affections of the blood are syphilis in one of the parents, albuminuria, eclampsia, or an infection either in the mother or child originating in the intestine or umbilicus. In the latter case the child often shows jaundice at the same time as well as other hæmorrhages. The prognosis is grave if the hæmorrhage is not checked at

the onset. Accidental hæmorrhage is easily controlled, but secondary hæmorrhage is refractory to any kind of treatment. J. D. ROLLESTON.

Symmetrical purpura of the extremities from pneumococcal infection in a newborn infant (*Arch. de Méd. des enf.*, 1920, xxiii, p. 179).—**Reh** reports the case of a male infant who, on the seventh day of life, developed symmetrical purpura of both upper and lower limbs which had been preceded two days previously by ulceration of the palate. Pneumococci were found in the cutaneous and palatal lesions. Death took place on the ninth day of life. Cultures of the blood and spleen showed diplostreptococci and staphylococci. No hæmorrhages were found in the internal organs except a small ecchymosis beneath the epicardium and in the left caudate nucleus. There was double broncho-pneumonia.

J. D. ROLLESTON.

Treatment of intracranial hæmorrhage in the newborn (*La Pediatria*, 1921, xxix, p. 13).—**R. Vaglio**, who records a case in an infant aged 3 days, draws attention to the efficacy of lumbar puncture in intracranial hæmorrhage in the newborn. His case, which was born in a slightly asphyxiated condition, forty-eight hours after birth developed without appreciable cause a series of convulsive movements, which increased in frequency and intensity and involved various muscles of the trunk and limbs. After removal of 10 c.c. blood-stained cerebro-spinal fluid under considerable pressure the convulsions diminished and the next day entirely ceased. Subsequent recovery was uneventful.

J. D. ROLLESTON.

Control of hæmorrhage in the newborn (*Arch. of Ped.*, 1919, xxxvi, p. 643).—**O. Berghausen** uses the father's or mother's blood, 200 c.c. of which is collected in a 2 per cent. sodium citrate solution. The mixture is filtered through sterile gauze and kept at body temperature. One hundred to 150 c.c. of the citrated blood is injected into a peripheral vein or the superior longitudinal sinus by a 50 c.c. Luer all-glass syringe. Berghausen also gives subcutaneous injections of the citrated blood in addition to intravenous injections. Although a reaction consisting in a rise of temperature to 100°–102° F. with or without a chill is likely to follow it soon passes off, and leaves no deleterious after-effects.

J. D. ROLLESTON.

The care of the premature child (*New York State Journ. Med.*, 1919, xix, p. 180).—**H. Schwarz** directs attention particularly to the temperature of the child and of the room, nourishment, respiration, weight, and nursing care. He points out that in sizing up the prognosis in a premature infant it must not be forgotten that a child may be full term yet not really ripe or fully developed. In addition to being premature it may be congenitally weak, with inability to perform the normal functions of life. It may have congenital deformities which further impair its chances to live. The period of rapid development in the last months of uterine life which these children lose has to be allowed for by proper and sufficient nourishment. It must be realised that these babies miss the great deposit of mineral salts, especially iron and calcium, which occur in the last months of pregnancy, and thus regularly become anæmic and rachitic. The immediate prognosis depends upon (1) the degree of somnolence, (2) the frequency and duration of the period of cyanotic attacks, (3) the ability to suckle or swallow, (4) the ability to keep the temperature fairly normal, (5) the ability to gain weight.

J. ALLAN.

Diseases of the Blood.

Researches on the viscosity of the blood ('*La Pediatria*,' 1919, xxvii, p. 278).—**M. Sindoni**, investigating cases of anæmia (von Jaksch type), chloroma, kala-azar, malaria and congenital heart disease in comparison with healthy infants, finds that (1) in all diseases in which there is a diminution of the corpuscular mass of the blood the viscosity is markedly diminished; (2) the time of coagulation is slightly increased in relation to the diminution of viscosity; (3) during treatment of kala-azar with tartar emetic there is no modification either in the viscosity or time of coagulation; (4) in congenital heart disease with polyglobulia there is increased viscosity and a slight diminution of the time of coagulation.

VINCENT DICKINSON.

The blood viscosity and its relation to blood-pressure ('*La Pediatria*,' 1920, xxviii, pp. 368 and 419).—**A. Nizzoli** contributes an elaborate paper on this subject based on an analysis of 2278 cases in children. He is unable to find any confirmation of Martinet's assertion that in normal children there is a constant ratio between the blood-pressure and the blood viscosity, nor does it afford in children's diseases any useful indication beyond that which is obtained apart from examination of these two separate items.

VINCENT DICKINSON.

Pernicious anæmia in childhood ('*La Pediatria*,' 1920, xxviii, p. 785).—**E. Mensi** states that pernicious anæmia is one of the rarest of children's diseases, only 4 cases, whose ages ranged from seven months to two years, having been observed among 3029 children in his hospital. Of 29 cases collected from the literature 14 were under two years and 15 above that age. Twenty were males and 9 females. Apart from syphilis, tuberculosis and the *Bothriocephalus latus*, in the great majority of cases it is impossible to find any causal factor. There is a plastic form which is by far the most frequent and an aplastic form; intermediate or hypoplastic forms have also been described. The prognosis is very unfavourable and treatment is almost valueless.

J. D. ROLLESTON.

Aplastic pernicious anæmia ('*La Pediatria*,' 1919, xxvii, p. 754).—**R. Khàrina-Marinucci** describes the case of a girl, aged 17 months, brought up on mixed feeding, mainly breast. Blood-count showed hæmoglobin 20 per cent., red cells 680,000, white 12,320, intense anisochromia, poikilocytosis with giantocytes and microcytes; polynuclears 26 per cent., eosinophils 4 per cent., lymphocytes 63 per cent. The Wassermann reaction was strongly positive in both patient and mother. The examination of bone-marrow from the tibia showed a marked condition of aplasia.

VINCENT DICKINSON.

Acute leukæmia in an infant ('*Amer. Journ. Dis. Child.*,' 1921, xxi, p. 163).—**L. W. Smith** reports a case in a male infant, aged 6 weeks, in whom, according to the history, the disease began definitely at the age of three weeks, while the presence of an axillary node from birth seemed strongly to suggest an intra-uterine development of the condition. There were ten or twelve purpuric spots scattered over the body and under the left axilla. On palpation the spleen was felt filling two-thirds of the abdomen. There was slight enlargement of the liver and of all the lymphatic glands.

Just before death, which occurred suddenly from pneumonia at the age of two months, the leucocytes numbered 30,000, 2 per cent. of which were polymorphonuclears, 32 per cent. large lymphocytes, 63 per cent. small lymphocytes, 2 per cent. normal small lymphocytes (?) and 1 per cent. large mononuclears (?). There was no autopsy. The mother's blood picture and white-cell count were definitely normal.

J. D. ROLLESTON.

Lymphatic leukæmia ('*Arch. of Ped.*,' 1920, xxxviii, p. 726).—A. J. Scott, jun., reports a case in a boy in whom the first symptoms appeared at the age of 3 years and 9 months, death occurring two months later from profuse gastric hæmorrhage. Blood examination three weeks before death showed 243,000 leucocytes, 97 per cent. of which were lymphocytes. Respiration was very dyspnoeic, owing to the pressure of an enlarged thymus, but considerable relief was obtained by X-ray treatment. There was no autopsy apart from examination of the child's tonsils and adenoids, which showed hyperplasia of the lymphoid elements and no evidence of malignancy or tuberculosis.

J. D. ROLLESTON.

A case of Hodgkin's disease ('*Med. Journ. of Austral.*,' 1918, II, p. 286).—T. H. R. Mathewson.—The patient was aged 10 years, and the microscopical appearances of the gland recorded were identical with those of Hodgkin's disease.

F. R. B. ATKINSON.

Streptococcal purpura fulminans ('*Rev. méd. Suisse rom.*,' 1920, xl, p. 690).—Reh records a case of generalised purpuric eruption in a girl, aged 6 years, which occurred three weeks after an attack of enteritis and proved fatal in less than twelve hours. Cultures of the blood and spleen showed streptococci. The autopsy showed ecchymoses in Peyer's patches and the mucosa of the large intestine and hæmorrhages in the suprarenals, ovaries and parietal peritoneum.

J. D. ROLLESTON.

Chloroma in childhood ('*La Pediatria*,' 1920, xxviii, p. 593).—E. Mensi, who records 3 cases and has collected 41 others from the literature, states that chloroma is a disease of childhood, about half the cases occurring at this age. The youngest patients on record were aged 10, 18 and 21 months. The male sex is most affected. Of 40 cases in which the sex is given 26 were males. Heredity, previous diseases and trauma have no ætiological importance. Mensi describes the following varieties of the disease: (a) Chloroma with micro-lymphocytes, the rarest form. (b) Chloroma with macro-lymphocytes, the most frequent form. (c) Chloroma with macro-lymphocytes and myeloblasts as well. (d) Chloroma with myelocytes. (e) Subleukæmic and aleukæmic forms. (f) Asymptomatic forms, in which the typical localisation, exophthalmos and tumours of the skull and face are absent. As in leukæmia, the prognosis is unfavourable and the treatment unsuccessful.

J. D. ROLLESTON.

Diseases of the Liver.

The digestion and absorption of fats in congenital atresia of the bile-ducts ('*Glasg. Med. Journ.*,' 1920, II, p. 65).—H. S. Hutchison and G. B. Fleming report a case in a male infant, aged 4 months, who had a history of vomiting and jaundice since the age of three weeks. Labour was

normal. The child was apparently healthy at birth, and seemed to thrive satisfactorily until the age of three weeks. From birth the motions had always been almost white. When three weeks old he developed jaundice and commenced to vomit. The degree of jaundice varied from week to week, but never disappeared. On admission to hospital he weighed 10 lb. 2 oz., and there was marked icterus of the skin and sclerotics. There was shotty enlargement of the inguinal, axillary and cervical lymph-glands. Nothing abnormal in heart or lungs; tongue furred. The lower border of the liver, which was firm and regular in outline, was palpable three finger-breadths below the costal margin. The urine contained bile-pigment. The stools were almost white, with a slight brown tint in places, probably from admixture with urine. The child died nineteen days later. The post-mortem findings are summarised. The authors discuss the investigation of fat-metabolism adopted in this case, and make some comments on fat absorption. They reach these conclusions: (1) The case presented complete atresia of the bile-ducts, and no bile entered the gut; (2) the digestion of fat by fat-splitting was only slightly inhibited; (3) fat-absorption was greatly decreased; (4) the bile, therefore, seems to have only a slight influence on the fat-splitting properties of the pancreatic secretion. Its chief rôle is to aid absorption.

J. ALLAN.

A case of subacute proliferative cholangitis (*Med. Journ. Austral.*, 1920, II, p. 172).—**S. O. Cowen**.—A post-mortem examination was made on a female child who died at the age of 14 months of an acute toxæmia with enlarged liver. The microscopic examination showed great proliferation of the bile-ducts with numerous bacilli.

F. R. B. ATKINSON.

Fatal cases of icterus neonatorum in one family (*Nederl. Tijdschr. v. Geneesk.*, 1919, II, p. 1810).—**G. A. Prins**.—A woman whose first two children were healthy had a fall on her back, and her subsequent children, who were normal at birth, became very yellow on the third day. The first child born after the fall had some icterus neonatorum but recovered. The next child died a few days after the appearance of the jaundice, as did also the twins who were the next to be born. The following child was a full-term well-developed infant without any clinical evidence of syphilis and with a negative Wassermann reaction. Sepsis was improbable, as there was no fever or petechiæ and the umbilicus was completely normal. Death took place on the fifth day, two days after the appearance of the jaundice. On post-mortem examination the bile was extremely viscid, but otherwise nothing abnormal was found on naked-eye or histological examination. Prins attributes the condition to a congenital familial deficiency on the part of the hepatic parenchyma, similar to that which occurs in the cases of the thyroid, as is shown by a woman with Graves's disease giving birth to one or more children with myxœdema.

J. D. ROLLESTON.

Grave familial jaundice in the newly-born (*Practitioner*, 1920, CIV, p. 1).—**H. Rolleston** states that some of the families in which this disease has been reported are remarkable for the large number of pregnancies. The disease appears less likely to attack first- and second-born than the later infants. Of 62 cases on record 31 were males and 31 females. The prognosis is bad. Out of 130 collected cases, 100, or 77 per cent., proved fatal. Rolleston regards the condition as due to foetal toxæmia of maternal origin, and recommends care of the mother's diet and administration of

intestinal and biliary antiseptics such as hexamine, salicylate of soda, minute doses of calomel, tetrachloride of naphthalene, salol and guaiacol. He records a case of a woman who had had recurrent jaundice with three successive pregnancies with fatal jaundice in the infants, and was given hexamine and salicylate of soda in her fourth pregnancy. In the eighth month she became somewhat jaundiced just before the birth of a boy, who was never icteric and was well ten years later. In her fifth pregnancy she was treated with small doses of hyd. c. creta, but was jaundiced during the eighth and ninth months, and bore a girl who was slightly jaundiced and died of acute gastro-enteritis when seven weeks old.

J. D. ROLLESTON.

Familial jaundice of the newborn ('*Practitioner*,' 1920, cv, p. 217).—A. P. Agnew records a case of a family in which the second and third child, a boy and girl respectively, died on the third and twenty-fifth day of life with intense icterus. There was no ground to suspect syphilis. No autopsy was performed in either case.

J. D. ROLLESTON.

A familial epidemic of catarrhal jaundice ('*Paris méd.*,' 1920, I, p. 41).—E. Chabrol and J. Dumont report three cases in girls of one family, aged $8\frac{1}{2}$, $11\frac{1}{2}$ and 10 years, who in the course of three weeks successively developed a mild attack of catarrhal jaundice. Although spirochaetes were found in the urine in two cases, inoculation of guinea-pigs and the serum agglutination test were negative, so that spirochaetosis icterohæmorrhagica could be excluded. The patients' serum was then tested with other organisms which give rise to catarrhal jaundice with negative results. Similar cases of familial jaundice have been described by Merklen (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1911, VII, p. 224), and Chabrol and Dumont have also observed two brothers, aged 10 and 11 years respectively, who developed jaundice within a fortnight of one another.

J. D. ROLLESTON.

Familial cirrhosis of the liver ('*Arch. f. Kinderheilk.*,' 1920, LXVIII, p. 144).—O. Schuscik reports the case of a hitherto healthy female child, aged 2 years, whose two sisters had died of jaundice at the ages of $2\frac{1}{2}$ and $2\frac{1}{2}$ years respectively. Repeated attacks of jaundice occurred and were accompanied by enlargement of the liver and spleen. The urine was at first clear and only occasionally contained traces of bile-pigment. The stools during the last few days of life were completely acholic. The disease proved fatal in seven months, death following influenza complicated by pneumonia. There was no history or evidence of syphilis, tubercle, blood-disease, alcoholism or malaria. The autopsy showed hypertrophic cirrhosis of the liver, chronic enlargement of the spleen and pneumonia of the right upper lobe.

J. D. ROLLESTON.

Two cases of hypertrophic cirrhosis of the liver in the same family ('*Journ. Amer. Med. Assoc.*,' 1920, LXXV, p. 743).—A. Bamberger reports two fatal cases of cirrhosis probably of syphilitic origin in brothers, aged 10 and 11 years respectively, who were born two years apart. The three children born prior to the older one and five born after the younger one were healthy.

J. D. ROLLESTON.

Hydatid disease of the liver ('*La Pediatria*,' 1920, XXVIII, p. 283).—N. Iavarone records a case in a boy, aged 6 years. The disease started with

continued remittent fever, which lasted two months and was diagnosed as typhoid. The fever then diminished in intensity, but there were still rises of temperature in the evening and at night, preceded by coldness of the extremities and sometimes followed by sweating. At the same time the mother noticed an increase in size in the abdomen, especially on the right side. The possibility of hydatid disease of the liver suggested itself and was confirmed by operation. Recovery took place. J. D. ROLLESTON.

Hydatid disease of the liver in a child (*Riv. di Clin. Ped.*, 1920, xviii, p. 623).—N. Fedele states that, though hydatid disease is rarer in childhood than in adult life, cases have been described in children of all ages, even in earliest infancy and foetal life. He reports a case of hydatid disease of the liver in a girl, aged 5 years, in whom the diagnosis was confirmed and a cure effected by operation. J. D. ROLLESTON.

Hepatoma in an infant (*Arch. of Ped.*, 1919, xxxvi, p. 268).—M. Wollstein and H. R. Mixsell report a case of hepatoma in an infant, aged 4 months. It was a primary epithelial growth of the liver, probably congenital in origin, with metastases in the upper lobe of the left lung. The tumour in the liver grew to be very large, emaciation, cachexia and death resulting six months after a nodule had been first noticed. J. D. ROLLESTON.

Reviews.

TRAITÉ DE L'ALLAITEMENT ET DE L'ALIMENTATION DES ENFANTS DU PREMIER AGE. PAR LE DR. A. B. MARFAN. 3^e édition, revue et augmentée. Pp. 926. Paris: Masson et Cie. Price 45 francs.

PROF. MARFAN'S classical work, the present edition of which has been considerably delayed by the war, is probably too well known to the paediatrists of all countries to require a detailed description, but a short account of its contents may be welcome to our readers. The book is divided into four parts. The first is devoted to the description of milk, and digestion and metabolism in the normal infant. Special chapters are given to the consideration of the physical and chemical properties of milk, the enzymes of milk, the anatomy and physiology of the milk secretion, the excretory function of the mammary gland, the micro-organisms of milk, milk analysis and adulteration, digestion of milk and metabolism in the infant, including a review of recent work on vitamins. In the second part, which is concerned with lactation, Prof. Marfan discusses the regulation of breast feeding, the hygiene of the nursing mother, the choice of a wet nurse, syphilis and lactation, artificial feeding, mixed feeding and weaning. The third part deals with the feeding of weakly newborn children and abnormal or sick infants, a detailed and critical account being given of various foods such as buttermilk, skimmed milk, albumin milk, and starch preparations, kefir, koumiss, malt soup, etc. The fourth part, which, though specially appealing to French readers, cannot fail to be of international interest, relates to the protection of infancy and contains chapters on eugenics, prenatal care of the mother, and the various institutions and laws intended to promote breast feeding or to improve the conditions of artificial feeding. Needless

to say Prof. Marfan insists on the importance of breast feeding by the mother throughout the work, the only condition in which he considers separation of mother and child being open tuberculosis of the former. According to his scheme of breast feeding the child is suckled every two and a half hours from 5 a.m. to 11 p.m. until the fourth or fifth month, when the intervals between the feeds may be increased to two hours and three-quarters, but it is not until the sixth month that the intervals are to be increased to three hours.

It is noteworthy that Prof. Marfan does not condemn the use of the "comforter," provided it is not hollow or does not contain any toxic substance such as mercury, zinc, chloride of sulphur or hydrochloric acid, but considers that the movement of suction which it provokes may stimulate gastric secretion and favour digestion in infants fed on cow's milk.

The work is characterised throughout by a clearness of exposition which recommends it to the student and practitioner, for both of whom it is intended. The absence of an index, which is the rule in French text-books, though a serious disadvantage in a work of over 900 pages is to some extent repaired by a very full table of contents. J. D. R.

THE DISEASES OF THE NEWBORN. By Dr. AUGUST RITTER VON REUSS, Director of the Department for the Newborn at the First University Women's Clinic in Vienna. Translation revised by JOHN D. ROLLESTON, M.D., B.Ch., M.A.Oxon. Pp. xii + 626, 90 illustrations. 1921. Price 52s. 6d. net.

The book before us originated from a belief on the part of its author that in its difficult struggle for existence the newborn infant has not received from the hands of the doctor all the skilful help to which it is legitimately entitled. In virtue of the fact that it is partly a fetus and partly an infant the neonate is in certain respects disputed territory. The pædiatrist and accoucheur each consider it to be the province of the other, and as the result of this borderland conflict the child very often suffers. Dr. von Reuss wrote this comprehensive book with the object of remedying this state of affairs, and we may state at once that the author has undoubtedly succeeded in his aim by producing a monograph which will be of the utmost value to the pædiatrist, or the practitioner, who in the ordinary duties of his midwifery practice is called upon to guide the mother and maternity nurse.

The book consists of nine parts, divided as follows: Neonatal Physiology, Feeding, The Premature Child, Constitutional Diseases, Birth Injuries, Diseases of the Various Organs and Systems, Hæmorrhagic Diseases, Diseases of Obscure Ætiology (*e.g.* Winckel's disease, Buhl's disease, etc.), Infectious and Septic Diseases. There is also a bibliography as well as an index.

The original German edition appeared in 1914, and the references to literature are complete (though probably not exhaustive) up to that year. The English issue is a literal translation of the German edition, and although the translation has on the whole been very creditably done, it is not difficult to see that much of the credit is due to Dr. Rolleston, who was entrusted with the work of revision, for in spite of the latter's vigilance a good many errors either of diction or of translation (in addition to some misprints) are found throughout the book. Moreover there is internal evidence that the translation has been carried out by more than one person, of whom some were more familiar with the language of the original, others with the language of its adoption. The book—though, as we have already

said, very useful to all doctors who have to deal with the neonatal period of life—will specially appeal to the advanced students. The more elementary reader will probably find himself bewildered by the amount of detail, which, though interesting, is not essential for the purpose of imparting the requisite information.

W. M. F.

DIAGNOSTIK UND THERAPIE DER KINDERKRANKHEITEN. Von Prof. Dr. F. LUST, Oberarzt der Universitäts-Kinderklinik in Heidelberg. Zweite Auflage. Berlin & Wien: Urban & Schwartzberg, 1920. Price 70 marks.

THIS book, which forms the substance of a course of lectures given by the author at the Heidelberg Children's Clinic, consists of 470 pages divided into two parts. The first part, comprising some 330 pages, deals with the diagnosis and treatment of the diseases of childhood from birth up to puberty. Its scope will be best realised from the following abbreviated table of contents. After a short introductory chapter giving a few of the more important landmarks and dates in the child's normal development, a very detailed account is given of the feeding of children, both natural and artificial. Chapter III is devoted to the diseases of the newborn. The remaining chapters deal with the diseases of nutrition (*e.g.* rickets, scurvy, obesity, etc.), blood, internal secretory organs, heart, respiratory organs (including the ear), digestive organs, urogenital apparatus, infections and skin diseases.

The second part consists of appendices dealing with various therapeutic methods and procedures, as well as of other useful information regarding child welfare.

Each disease is described very briefly, mention being made only of the diagnostic signs and symptoms. The differential diagnosis is dealt with so scantily as to be of very little practical help. On the other hand the sections dealing with treatment are very detailed, comprehensive, and in most cases really excellent. It is this portion of the book which will be found very useful to practitioners. Indeed, the fact that this second edition has been called for within two and a half years after the publication of the first edition is evidence of its usefulness. But it proves more than that: it is an illustration of the attention devoted by the medical profession in Germany to the study of matters connected with child welfare. We doubt whether a book such as this published in England at a considerably lower price would reach a second edition so quickly. The value of the book would be enhanced by a few helpful illustrations.

W. M. F.

THERAPEUTISCHES VADEMEKUM FÜR DIE KINDERPRAXIS. Von Dr. HANS KLEINSCHMIDT, zweite u. dritte verbesserte Auflage. Berlin, 1920. Price M. 15.

THIS booklet, consisting of 196 small pages (including a serviceable index), is a very portable little volume, being small and light enough to be carried in the pocket. As its title implies it is exclusively devoted to treatment, and for this reason its usefulness as a companion to the pædiatric practitioner is greatly restricted. It is divided into eight parts. The first part of six pages is devoted to general therapeutics. Parts ii, iii, and iv deal with the feeding of healthy and constitutionally abnormal children as well as with the treatment of nutritional disturbances. Parts v and vi discuss the treatment of the diseases of the newborn and of infancy as well as of later childhood. Parts vii and viii are appendices giving formulæ for the

preparation of various domestic remedies and the names of institutions for children suffering from diseases requiring special treatment such as tuberculosis, epilepsy and the various psychoses. The book is good as far as it goes, and judging from the fact that a first edition was exhausted within about 18 months it is clear that the book fulfils a want in Germany although it is a little difficult to see to which class of readers it can specially appeal. We feel that by slightly curtailing certain portions of the book a few remarks on the diagnosis of each of the diseases dealt with could be easily introduced without perceptibly increasing its size, but with a considerable extension of its sphere of usefulness.

W. M. F.

SYPHILIS AND VENEREAL DISEASES. By C. F. MARSHALL, M.D., M.Sc., F.R.C.S., and E. G. FFRENCH, M.D., Ch.B., F.R.C.S.Edin., Lieut.-Col. R.A.M.C. (retired). Being the fourth edition of 'Syphilology and Venereal Disease.' London: Baillière, Tindall & Cox, 1921. Price 25s. net.

THE last edition of Dr. Marshall's text-book was published in the first month of the war (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1914, xi, p. 523). In the present edition, in which Lieut.-Col. Ffrench has collaborated with Dr. Marshall, not only has much new matter been added but the book has undergone a thorough revision by both writers. The chapter on laboratory diagnosis, in which the technique of the Wassermann reaction has been described by Dr. A. G. Shera, has been considerably amplified. Gonorrhœa receives much fuller consideration than before, especially as regards treatment. Several pages have been added on other lesions of the genital organs besides syphilis, gonorrhœa and chancre, such as scabies, balanitis, molluscum contagiosum, herpes, papillomata and venereal ulcer, and a description of the newer remedies is given, including sodium salvarsan, silver salvarsan, luargol, disodo-luargol and intramine. The other new features of the work are the insertion of a large number of figures and seven coloured plates, the allocation of the bibliography at the end of the book in place of a separate bibliography at the end of each chapter, and an appendix containing instructions to patients suffering from syphilis or gonorrhœa. The most striking change, however, which we think will be welcomed by all, is in the attitude of the work towards salvarsan. Whereas in previous editions it was stated that mercury was the most powerful anti-syphilitic remedy, in the present edition the writers maintain that salvarsan combined with mercury is the most powerful anti-syphilitic weapon.

In spite of the recent flood of text-books on the subject of venereal disease, we have no hesitation in saying that for clearness of exposition, conciseness of style and abundance of detail the present work can challenge comparison with any of its rivals.

J. D. R.

NOUVEAU TRAITÉ DE MÉDECINE PUBLIÉ SOUS LA DIRECTION DE MM. LES PROFESSEURS G. H. ROGER, F. VIDAL, and P. J. TEISSIER; Secrétaire de la Rédaction, MARCEL GARNIER. Fascicule I. Maladies Infectieuses. Pp. 482. Paris: Masson et Cie. 1920. Price 35 Francs. Grand 8vo.

THIS is the successor of the *Traité de Médecine* brought out in 1891 by Charcot, Bouchard and Brissaud, which passed into a second edition in 1898. Bouchard in 1912 associated himself with the present editors and

Prof. Gouget as general secretary, and the 129 contributors to the 21 volumes, each with 400 to 500 pages, were duly selected; indeed before the war the first volume was on the point of being published. During the war Professors Bouchard and Gouget unfortunately died, and M. Garnier took on the secretarial duties. The present volume—which has received additions since 1914, for example the article on pneumococcic infections contains references to Avery, Chickering, Cole and Douchez's monograph on lobar pneumonia, and to Sir F. S. Lister's experimental study of prophylactic inoculations in 1916—is devoted to the first instalment of the general infections, introduced by a general article from the pen of Prof. G. H. Roger, the Dean of the Medical Faculty of the University of Paris, who also writes on streptococcic infections and on erysipelas. Prof. Sacquépée, of the Val-de-Grâce, contributes the article on the septicæmias, and Prof. Macaigne is responsible for those on infections by staphylococci, tetragenus, enterococcus, Pfeiffer's *cocco-bacillus*, Friedländer's *diplo-bacillus*, psittacosis, and *B. proteus*. In the article on putrid and gangrenous infections Dr. Veillon, physician to the hospital of the Pasteur Institute, refers to three serums—the anti-perfringens, the anti-vibrio septique and the anti-bellonensis or oedematis against infections which are often combined and require large quantities of serum repeated on several successive days. The account of epidemic cerebrospinal fever is appropriately written by Prof. Dopter of the Val-de-Grâce, and is successfully illustrated, but does not contain any reference to the work done by Dr. Mervyn Gordon and his colleagues. The last article in the volume is by Dr. Hudelo on gonococcic infection, and deals much more in detail with urethral infection than is usual in works on medicine as apart from surgery. The work is well got up and the illustrations are beautifully executed.

H. R.

FEEBLENESS OF GROWTH AND CONGENITAL DWARFISM, WITH SPECIAL REFERENCE TO DYSOSTOSIS CLEIDO-CRANIALIS. BY DR. MURK JANSSEN, O.B.E., Lecturer on Orthopædic Surgery, University of Leiden, Holland. Foreword by Sir ROBERT JONES. Oxford Medical Publications. Octavo. Pp. 82; 40 figures. London: Henry Frowde and Hodder & Stoughton, 1921. Price 12s. 6d. net.

THE author states in an introductory note that the whole of the book is an attempt to work out two underlying principles of growth, which he recognised in 1910, and which had previously escaped notice: (1) Injurious agents affecting growing cell-groups enfeeble their power of growth; (2) the measure in which growth is enfeebled is proportional to the rapidity of growth (the author's "law of the vulnerability of fast-growing cell-groups"). The book is divided into two parts, the first dealing with disorders of growth which develop after birth, the second dealing with the more serious congenital disorders of growth. Speaking of rickets (p. 23) the author observes: "It is well known that pathologists have described as hyperplasia the thickening of the growth-cartilages of children said to be rachitic. A strange form of hyperplasia, indeed, that leads to shortness of the bones and to a dwarfing of the whole individual! . . . And all that we have been able to observe in our clinical and pathological study of rachitis leads us to conclude that the extra-retardation of differentiation of the cartilage-cells is the cause of their being heaped up. These cells go on splitting up and enlarging, but the magic power of the vascular loops (or their contents) is exhausted." This quotation to some extent illustrates the author's views. On p. 44 the author refers to hypertrophy of the tonsils and lymphatic glands in children. He thinks that

"inasmuch as this hypertrophy shows a parallelism with the symptoms of feebleness of growth, its relation to this condition cannot be denied." We would suggest that the explanation can be sought in modern teleology, and that the feebleness of the organism towards infections, especially the feeble power of the lymphatic glandular apparatus, gives rise to hyperplasia of lymphadenoid tissue—an attempt on the part of the organism to compensate for deficiency in effective quality by excess in quantity. In regard to congenital abnormalities in growth the author attributes much to *excessive amniotic pressure*. He discusses anencephaly, achondroplasia, mongoloid idiocy, dysostosis cleido-cranialis, congenital club-foot, and congenital dislocation of the hip. It is perhaps remarkable that in the first part of the book he does not illustrate his views by reference to the class of post-natal retardation, or arrest, of development, to which Hastings Gilford has applied the term "ateleiosis." An excellent example of an ateleiotic dwarf, a man, aged 42 years, was described by the writer of the present notice in the *BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1910, vii, p. 359, and a medical friend remarked that the little man in question was the "true Peter Pan," because he would never grow up.

F. P. W.

ÜBER DISPOSITION. By Dr. F. VON SZONTAGH. Sm. quarto, pp. 347, with 14 illustrations. Berlin: S. Karger, 1918. Price 18 marks.

THIS is a book which touches a good many diseases, chiefly the exanthemata, and puts forward diverse arguments in favour of non-specificity and of predisposition. The latter the writer conceives of as, at bottom, a derangement of metabolism. Plenty of cases are cited likely to interest paediatricians, and the striking and familiar facts relating to the similarity of the clinical history of twins are also used in an effective way. Poncet's statement as to the frequency of abortive tuberculous meningitis in the subjects of what is known as primary tuberculous rheumatism might have been useful to the author's argument. He mentions, and strongly recommends, a simple cure for warts, which perhaps it is not for the reviewer to give away. The style is lively, and the author's conviction manifest and explicit. He should now follow up his *orientierung* with experimental work designed to test his thesis that "krisenartige explosionen der Stoffwechselstörungen machen das Wesen der Pathogenese kontagiöser und infektiöser Krankheiten aus" ("Outbursts of metabolic disturbance as it were, like crises, constitute the pathogenesis of contagious and infectious diseases").

W. C. R.

SYNOPTIC CHART OF CARDIAC EXAMINATION. Arranged by JOHN D. COMRIE, M.A., B.Sc., M.D., F.R.C.P.E., Assistant Physician, Royal Infirmary of Edinburgh. London: John Bale, Sons & Danielsson, Ltd. 1920. Price 4s. 6d. net.

THIS ingenious synoptic chart consists of a piece of cardboard with a diagram of the chest in which, by an arrangement of tapes, the names of the various cardiac diseases can be made to appear successively in an opening in the chart simultaneously with the corresponding physical signs at other windows in the chest-wall. A brief account of the causes, symptoms and physical signs of cardiac disease, including a description of the more recently introduced methods of cardiac examination, will be found in a pamphlet enclosed in an envelope attached to the back of the chart.

J. D. R.

THE SCIENCE OF OURSELVES. (A SEQUEL TO THE 'DESCENT OF MAN.')
By Sir BAMPFYLDE FULLER, K.C.S.I., C.I.E. Octavo. Pp. 326 + x.
London: Henry Frowde and Hodder & Stoughton, 1921. Price
16s. net.

THIS book attempts a popular explanation of the development of human intelligence, of the human mind, of human aspirations, in the same way that Darwinic evolution has explained the gradual structural development of the highly complex human organism from simpler forms of life. Much of the book has to do with the almost endless subject of *instincts*. As to the developmental effects of emotions, passions and aspirations, we quote from p. 211:—"The history of man is only in part a record of passionless evolution; in great measure it dramatises the growth and decadence of idealistic visions—the unceasing contrariety of imagination and experience, the contradiction of illusion by disillusion." In regard to the evolution of morality the author (p. 220) remarks: "Morality outgrows its magical swathing-clothes and becomes *practical* when it is directed by an appreciation of the material consequences of conduct. . . . Morality becomes *ideal* when its rules are associated with ideas which render them attractive, such as those of magnanimity, or resistance for its own sake, of sympathy with our fellows or of obedience to a revered authority." In regard to fear (p. 192) we read: "Finally we may remark upon the inhumanity of fear and anger. They are cruel because the one is set upon escape, the other upon retaliation—regardless of consequences Terror extinguishes every spark of humanity." In his epilogue (p. 320) the author admits that the views to which his inquiries have led him are disillusioning: "We are, indeed, coming to realise that history is a picture-film of torturings, enlivened by a military band." He thinks that self-ignorance is not bliss, for in spite of all illusions, mankind does not live happily, and this constitutes an argument for disillusionment and for "bringing the mainsprings of human behaviour under the light." What a caricature of certain types of thoughtless perfunctory human conduct is furnished by Henri Fabre's observation (p. 5) on mason-wasps, showing the unintelligence of their instinct. He watched a mason-wasp constructing its nest: "It had finished the little mud dome, leaving an aperture through which it had inserted its egg, with some spiders to provide the grub with food, and had flown away to procure mud for the cover. M. Fabre removed the nest and put it in his pocket. The insect returned, and contentedly plastered the cover upon the scar that the nest had left on the wall." The author's materialistic conclusions from his attempt to analyse human nature should certainly lead those who agree with him to take a charitable view of much of human misconduct, and he quotes the familiar saying, *Tout comprendre est tout pardonner*. Yet though free-will may perhaps not play a very great part in human conduct, it does exist, and, if that be granted, human beings must be acknowledged as the architects, not only of their own lives, but (by the care and education of children) of the lives of their successors. Whether one agrees altogether with the author or not, the book is also valuable and interesting for the many facts and observations referred to, though the reader may find it at first rather difficult to swallow the statements (pp. 277–280) about the Romulus-and-Remus-like "wolf-children" of India.

F. P. W.

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THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XVIII.

APRIL—JUNE, 1921.

Nos. 208-210.

Original Articles.

SOME REMARKS ON THE DIAGNOSIS AND
TREATMENT OF CONGENITAL SYPHILIS.*

By C. F. MARSHALL, M.D., F.R.C.S.

As the subject of this paper is rather comprehensive, I propose to confine myself to a consideration of some of the more important points, especially those in which the diagnosis is doubtful, controversial or somewhat ignored.

Congenital syphilis appears to have changed in type of late, possibly owing to improved treatment, possibly owing to changes in the strain of the spirochæte or to other factors at present unknown.

We do not so often see the "wizened old man" with *café-au-lait* complexion described by Trousseau and Jenner. In fact, the majority of congenital syphilitics are apparently healthy at birth and do not show symptoms till a few weeks old. On the other hand, there is an apparent or real increase in visceral and nervous syphilis.

First, a few words concerning early diagnosis. We should bear in mind that many infants suffer from coryza and rashes on the buttocks without being necessarily subjects of congenital syphilis. The most important of the early diagnostic signs are: desquamative eruptions on the palms and soles, enlargement of the liver and spleen, epiphysitis, fissures about the mouth, and orchitis.

We will now discuss some of the more important questions

* A Paper read before the Eastbourne Medical Society on March the 29th, 1921.

concerning the ætiological factor of congenital syphilis in affections of the different organs of the body, and the chief points in differential diagnosis.

THE TEETH.

Congenital syphilis may affect either the first or the second dentition, more commonly the latter. It causes arrested development and malformations, giving rise to the so-called erosions, which are due to arrested development of the enamel and exposure of the dentine.

The best-known type is that described by Hutchinson, with crescentic notching of the free border, most often seen in the upper median incisors, but sometimes in the lower incisors. In its early stage the notch is filled with dental vegetations, the remains of atrophic changes during development: as these are worn away the typical notch is produced. In later years the notch becomes worn horizontal and loses its characteristic appearance.

Hutchinson's teeth are pathognomonic of congenital syphilis, but as they are not very common, and when present are usually associated with other characteristic signs, such as keratitis and saddle nose, they are not often helpful in the diagnosis of doubtful cases.

The question then presents itself whether any other dental abnormalities are diagnostic of congenital syphilis. The chief of these are (1) the dome-shaped first molars, described by Moon, due to suppression of the central tubercle in each cusp and falling together of the lateral ones; (2) pitted erosions, forming greyish-white dots; (3) transverse furrows; (4) microdontism; (5) premature caries; (6) irregular implantation; (7) wide interspacing; (8) amorphism, or deviation from type; (9) white transverse lines.

Now some of these erosions are seen in animals, especially the dog, in which they are said to be caused by distemper. In the human subject it is also probable that other infections than syphilis contracted by the mother during pregnancy may affect the development of the teeth in the fœtus. Hence, syphilis is not the only cause of these malformations.

With regard to premature caries, the milk teeth of syphilitic infants are sometimes affected with caries of their necks, so that the crowns drop off. This condition, which chiefly affects the upper incisors, is suggestive of congenital syphilis but not pathognomonic.

Another affection of the milk teeth in congenital syphilis described

by Hutchinson is suppuration of the sacs, resulting in exfoliation of the crowns. This is a rare condition.

Wide interspacing of the teeth and microdontism are regarded by several authorities as characteristic of congenital syphilis.

Transverse furrows and pitted erosions cannot be regarded as characteristic of congenital syphilis. Hutchinson attributed them to the results of stomatitis in infancy, often due to the mercury given for treatment. Mercury, he says, causes defective formation of enamel, exposing the dentine in the form of pits and erosions. Mercury, he remarks, tends to prevent the special malformations due to syphilis, but adds others of its own, and the two are often combined. In any case, such an effect on the milk teeth is a lesser evil than the omission of mercurial treatment.

A form of pitted erosion, which Hutchinson calls "craggy teeth," is regarded by him as a family peculiarity. The same probably applies to white transverse lines.

To sum up, I think we must conclude that the typical Hutchinson's teeth are the only ones which are absolutely diagnostic of congenital syphilis. Next to these in importance come Moon's dome-shaped molars, microdontism, wide interspacing, and exfoliation of the crowns of the milk teeth in infants. But these are not sufficient for diagnosis in the absence of other signs. They are suggestive but not conclusive. It must also be remembered that these dental abnormalities only occur in the minority of cases.

INTERSTITIAL KERATITIS.

Interstitial keratitis is not absolutely diagnostic of congenital syphilis as it occasionally occurs in acquired syphilis. In this case it differs nearly always in being less severe and limited to one eye only.

It may be mentioned that this affection reacts better to mercury than to salvarsan.

The prognosis as regards the cornea is good with proper treatment, but it depends on the presence or absence of concomitant choroiditis.

DEAFNESS.

Congenital syphilis is a common cause of deafness and deaf-mutism. In early congenital syphilis deafness may result from otitis media following Eustachian extension from rhinitis, or snuffles. But the characteristic syphilitic deafness, first described by Hutchinson, occurs in late congenital syphilis and is due to

hyperplastic labyrinthitis. It is usually bilateral and often rapid in onset. It is very resistant to treatment, but Hutchinson reported a case which was cured by mercury.

THE BONES.

Early signs.—First of all we must consider *Parrot's nodes*, forming the natiform or hot cross bun shaped skull, and *cranio-tabes*, for there has been a difference of opinion as to whether these conditions are caused by rickets or congenital syphilis. Parrot himself looked upon rickets as a symptom of congenital syphilis, but this idea is of course untenable, although we may admit that congenital syphilis predisposes to rickets.

Sir T. Barlow pointed out the connection between *cranio-tabes* and congenital syphilis. It is probable that both Parrot's nodes and *cranio-tabes* are due to congenital syphilis, but as the latter is a predisposing cause of rickets, they are often found in rickety children.

Before leaving the subject of rickets, the pseudo-rachitic deformity of the leg in late congenital syphilis, due to osteoperiosteitis of the tibia, requires a passing mention, although it is easily distinguished from rickets.

Two other bone lesions require attention: viz. *epiphysitis*, or osteochondritis, and *dactylitis*; the former because of its diagnostic importance, the latter because of the difficulty in diagnosis from tuberculous dactylitis.

The epiphyses, which are in active growth during the later months of foetal life and the early months of extra-uterine life, are especially liable to be attacked by syphilis. Hence the early appearance of epiphysitis, either before birth or soon after. The upper limbs are more often affected, and the resulting pain causes immobility of the limb—a condition named by Parrot "syphilitic pseudo-paralysis."

Epiphysitis is one of the most important of the early signs of congenital syphilis, and loss of power in an infant under six months old (apart from trauma) is an almost certain sign. It cannot be mistaken for any other condition. The deformity of the epiphyses due to rickets occurs later, usually after the sixth month.

Sometimes suppuration occurs with separation of the epiphyses.

Syphilitic dactylitis appears to have been first mentioned by the late R. W. Taylor of New York, who described it as occurring in both acquired and congenital syphilis. It may be single or multiple, bilateral or unilateral, and may affect the phalanges or metacarpals.

Tuberculous dactylitis differs in its greater tendency to supuration and infiltration of the soft parts, and in affecting the terminal phalanges, which are seldom involved in the syphilitic form. Syphilitic dactylitis also usually occurs at an earlier age. Some cases of syphilitic dactylitis, however, suppurate and may be almost impossible to distinguish from tuberculous.

In all cases antisyphilitic treatment should be tried, as the Wassermann reaction may be negative. Findlay reported a case in an infant aged 13 months which reacted to salvarsan, although the Wassermann reaction was negative both in the child and the mother.

Later signs.—An important point in diagnosis is the distinction between the bone and joint lesions of late congenital syphilis and those of tuberculosis.

As long ago as 1886 Fournier protested against the wholesale diagnosis of all bone lesions in children as "scrofulous," yet this tendency still persists, substituting the term "tubercle" for scrofula. Cases diagnosed as tuberculous and submitted to surgical procedures not infrequently heal under antisyphilitic treatment. I can remember many such cases in former years which failed to improve under surgical treatment, and which were probably syphilitic. Roberts, of New York, has recently published some interesting observations dealing with 200 cases of bone and joint disease, which, while showing the signs usually attributed to tuberculosis, were undoubtedly syphilitic. No less than 51 of these cases had been diagnosed and treated for tuberculosis.

The diagnosis of these cases is often difficult, and depends chiefly on the history, the presence of other signs of congenital syphilis or tubercle. Some assistance is given by X-ray examination, as the tuberculous process is that of rarefying osteitis, while the syphilitic process is more one of osteoperiosteitis, but the differentiation is often difficult and the interpretation is often inconclusive. The Wassermann reaction is also of help, but is sometimes negative, even when other signs of syphilis are present. The most valuable test is the effect of antisyphilitic treatment. Indeed it is well to give this a trial in all doubtful cases of bone and joint disease in children before resorting to apparatus for immobilisation or operative procedures.

This leads us to the combination, or symbiosis, of syphilis with tuberculosis.

SYPHILIS AND TUBERCULOSIS.

The combination of syphilis and tuberculosis was recognised long ago by Ricord, who gave it the name of scrofulo-syphilis; but after

the discovery of the tubercle bacillus *scrofula* was relegated to the domain of tuberculosis, and with it not a few conditions due to congenital syphilis.

In this symbiosis of tubercle and syphilis there appears to be a hybridity of soils with a juxtaposition of lesions rather than an actual hybridity of lesions. The best example is the hybrid of lupus and syphilis, in which the syphilitic part of the lesions heals under antisymphilitic treatment while the tuberculous part remains.

It is also probable that a congenital syphilitic soil predisposes not only to tuberculosis of the skin, glands, bones and joints, but also to pulmonary tuberculosis.

This implantation of tubercle on a syphilitic soil applies much more to congenital than acquired syphilis, and accounts for the majority of cases formerly called struma or *scrofula*.

VISCERAL SYPHILIS.

The diagnosis of visceral syphilis is difficult and often impossible apart from other clinical signs. The Wassermann reaction is often of assistance, although a positive reaction does not necessarily show that the lesion in question is syphilitic. The therapeutic test is of more value, but in many chronic or advanced conditions there is little or no response to treatment. It is important, however, to bear syphilis in mind as a possible cause of many visceral lesions.

Interstitial myocarditis may occur in infants and cause asphyxia neonatorum and sudden death. Aortitis and aneurysm have also been described. Congenital syphilis may cause a form of anæmia closely resembling splenic anæmia, and is also said to be one of the chief causes of paroxysmal hæmoglobinuria and Raynaud's disease.

Pericellular cirrhosis of the liver in infants may resemble sarcoma, and hepatic lesions, when accompanied by ascites, may be mistaken for tuberculous peritonitis.

It is important to know that congenital syphilis may cause interstitial nephritis in infants and children.

THE ENDOCRINE GLANDS.

One of the most interesting aspects of visceral syphilis is the part it plays in disease of the glands of internal secretion, or endocrine glands, a subject which has recently received much attention. Tuberculosis and syphilis appear to be the chief causes of endocrinic disease, and congenital syphilis probably takes a larger share than the acquired disease.

The suprarenal glands are the most often affected, giving rise to symptoms of Addison's disease and supra-renal insufficiency. In the *thyroid gland* the infection may result in diminished secretion with signs of myxœdema, or hypersecretion with exophthalmic goitre. In the *pituitary gland* lesions of the nervous portion appear to cause glycosuria; hypersecretion of the glandular portion is said to cause acromegaly; and diminished secretion has been alleged as a cause of osteitis deformans. Congenital syphilis affecting the *testicle and ovary*—which apart from their reproductive functions are glands of internal secretion—has been said to lead to arrested development of the sexual characters and arrest of development.

It is now generally believed that endocrine disease is not usually confined to one gland, but affects several different glands, as these are now known to be functionally interdependent, producing multi-glandular syndromes. Among the effects of this combined endocrine disease attributed to congenital syphilis are giantism and dwarfism, cretinism and infantilism, osteomalacia and achondroplasia. As regards the treatment of endocrine syphilis little can be expected in many of the conditions, but cases of Addison's disease and glycosuria have been reported which were benefited thereby, and a case of exophthalmic goitre is said to have been cured by salvarsan. As a rule antisiphilitic treatment should be combined with opotherapy.

THE NERVOUS SYSTEM.

Congenital syphilis may cause arrest of mental development, varying in degree from deficient intelligence to idiocy. This fact, although well known to the older syphilologists, was not sufficiently appreciated till the Wassermann test was applied to such cases. Thus, Gordon found a positive Wassermann reaction in 16 per cent. of 400 patients in the Metropolitan Asylums with various forms of mental deficiency, but much higher percentages have been found by other observers (60 per cent. in 205 cases by Fraser and Watson), and when we consider that not all cases of congenital syphilis give a positive Wassermann reaction, we must admit that this is the principal cause of mental deficiency. Indeed, Sir James Crichton-Browne has gone so far as to suggest that Bolshevism may be due to the wide-spread syphilisation of the Russian race. Certainly the photographs of some revolutionary leaders are somewhat suggestive. On the other hand, congenital syphilis is not incompatible with genius. To mention one example, Beethoven,

judging from his portraits, appears to have been a congenital syphilitic, and his deafness has been attributed to this cause.

As regards the treatment of mental deficiency due to congenital syphilis, there is little hope of benefit in well-established cases, as permanent damage is done to the brain during its early stages of development.

There are several affections which require notice as regards diagnosis. The chief of these are meningitis, epilepsy, juvenile general paralysis, and tabes.

Meningitis, due to congenital syphilis, is not common. It has to be diagnosed from tuberculous and meningococcal meningitis. The Wassermann reaction is here of much assistance, being usually positive in the cerebro-spinal fluid in syphilitic meningitis, and usually negative in the other two affections. Sometimes, however, a positive reaction is obtained in cases of tuberculous and meningococcal meningitis. Two explanations for this phenomenon have been suggested: (1) the occurrence of these forms of meningitis in a syphilitic subject; (2) the technique of the test. It is said that the reacting substances in the cerebro-spinal fluid come, not only from the diseased tissues, but also from the blood, owing to increased permeability of the meninges due to the meningitis, and that this may cause a positive reaction if the fluid is unheated in the test, even in the absence of syphilis. In testing these cases, therefore, the cerebro-spinal fluid should be heated as in the blood-test.

Epilepsy.—Apart from the epileptic attacks which occur in association with other signs of cerebral syphilis, there is a form of epilepsy which is clinically indistinguishable from so-called idiopathic epilepsy. To this form Fournier gave the name of parasyphilitic epilepsy. The question naturally arises whether syphilis, or rather congenital syphilis, is a cause of idiopathic epilepsy. A positive Wassermann reaction is found in many cases of idiopathic epilepsy, and it seems reasonable to regard congenital syphilis as one of the causes of this affection, and try antisymphilitic remedies, although their beneficial effect is somewhat problematical.

Juvenile general paralysis.—According to Mott, who was the chief observer to establish the syphilitic origin of this condition, about half the cases are congenital imbeciles, and in many there is optic atrophy in infancy. He also found definite signs of congenital syphilis in half his cases, and a history of parental syphilis in the majority.

When the symptoms develop after puberty there may be grandiose delusions. When the disease is delayed till adolescence

it must be diagnosed from dementia præcox, but in this there is no Argyll Robertson pupil, and the Wassermann reaction is negative.

Juvenile tabes is rarer than juvenile general paralysis. Some cases have been recorded which were due to acquired syphilis in children.

ACQUIRED SYPHILIS IN CHILDREN.

This leads to the diagnosis between congenital and acquired syphilis. This is more difficult in infants than in older children.

Infants may be infected by syphilitic wet-nurses, by using the same bottles, spoons, etc., as syphilitic infants, or by contagion from adults by kissing. Several cases have been recorded in which the infant was infected during birth from sores on the mother's genitals, but such cases are rare, and only occur when the mother is infected late in pregnancy.

The diagnosis of these cases depends on the presence of a chancre or multiple chancres, and the history of the mother's infection. The absence of signs of congenital syphilis is inconclusive, as so many infants are born without them.

As regards the results of syphilis acquired by infants soon after birth, it is probable that it causes many of the effects generally regarded as characteristic of congenital syphilis, for the spirochaetes will gain access to organs in process of development. Fournier mentions the case of an infant, infected by a syphilitic wet-nurse, which suffered from infantilism and atrophy of the testicles. A more remarkable case is that of Welender, in which Hutchinson's teeth and keratitis developed in an infant infected at the age of three months.

The diagnosis of such cases may present great difficulty, but is important from the medico-legal point of view.

Acquired syphilis in older children is less severe and more easy to diagnose if primary and secondary lesions are present, but if the case is not seen till tertiary lesions, such as gummata, appear, it is often impossible to say whether these are congenital or acquired.

GENERAL TREATMENT OF CONGENITAL SYPHILIS.

This is ante-natal and post-natal.

Ante-natal treatment.—The influence of ante-natal treatment by treating the mother during pregnancy has of late received increasing attention, and is proved by the statistics of foetal mortality in treated and untreated cases. Whitridge Williams, of the Johns Hopkins Hospital, found that the infant mortality in 421 cases was

52 per cent. in untreated cases and only 7 per cent. in cases well treated with salvarsan and mercury.

Whether these efforts to attain the survival of those who, after all, must be regarded as the potentially unfit, is to be desired from the eugenic and economic points of view is another problem. Indeed, it is possible that ante-natal treatment, although diminishing foetal mortality, may lead to an increase in the number of cases of late congenital syphilis. However, as the general trend of society at the present day is towards the propagation of the unfit at the expense of the fit, the addition of a few more syphilitics may not make much difference.

To return to our subject. Assuming our object is to attain a diminution of infantile mortality from syphilis, it is obvious that the earlier ante-natal treatment is commenced the greater is the probability of a living child being born. It had already been shown that treatment of the mother with mercury only, both before and during pregnancy, resulted in a much higher percentage of living infants than when treatment was commenced during pregnancy only. More recently combined treatment with mercury and salvarsan, given during pregnancy only, has been found to give better results as regards the number of children born alive and free from symptoms at birth. Salvarsan appears to have little or no tendency to cause abortion when properly administered.

There are three conditions in the pregnant woman which require consideration.

(1) When she has signs of syphilis. In this case treatment is of course indicated, both for her own sake and that of the child. If she is infected after the seventh month the chances are that the infant will escape infection; but it will be exposed to the risk of contracting acquired syphilis from the mother.

(2) When she has no symptoms, but has a positive Wassermann reaction. In this case she may have been infected from the husband if he has had recent syphilis. But if there are no signs of syphilis in the husband she may have been impregnated by an intervening syphilitic genitor. This assumes the possibility of paternal or spermatic infection of the ovum and conceptional syphilis in the mother. This mode of infection, although denied by many, has much evidence to support it. In either case ante-natal treatment is indicated.

(3) When she has no symptoms and a negative reaction, but the husband has recent syphilis. In this case I do not think treatment is necessary, for it is not certain whether either she or the foetus is infected. Another test should be done later on.

Post-natal treatment.—As a general rule it is advisable to treat the infant of a known syphilitic mother after birth, whether it has a negative or a positive Wassermann reaction and whether it shows signs of congenital syphilis or not, for we know that the majority are born with no symptoms and are often negative, and that some may have visceral syphilis.

Here again it is best to give combined treatment with arsenic and mercury. Many practise intravenous injections of arsenic, using the veins of the scalp, the external jugular or the dorsal veins of the foot. Some inject into the longitudinal sinus. Others obtain equally good results with intramuscular injections. Personally I prefer intramuscular injections made up with glucose, which diminishes the pain. Necrosis of the buttock, so often mentioned as an objection to this method, is in my opinion rather a bogey. I have never seen it, and Adams, who has used intramuscular injections of galyl and glucose for several years at the Thavies Inn Clinic for pregnant syphilitic women, has never had a case. Perhaps the cases of necrosis reported are due to too bulky injections, or possibly to the mixture with creocamph, which I have seen cause large and painful nodosities.

Mercury should be given simultaneously, either in the form of grey powder or inunction, and it is important to continue mercurial treatment for a year at least.

Late congenital syphilis should be treated with arsenic, mercury or iodides, according to the conditions presenting themselves. As a rule, however, it reacts less favourably than acquired syphilis to salvarsan, and some conditions improve better under mercury and iodides.

We now come to the question of the treatment of the children of syphilitic parents in whom there are no definite signs of congenital syphilis and no history of such in infancy, but who are found to have a positive Wassermann reaction.

This is a somewhat similar problem to that of the treatment of a persistently positive Wassermann reaction in acquired syphilis and depends on the signification of the reaction. Most pathologists are of opinion that a positive Wassermann reaction always signifies the presence of active spirochætes, but Levaditi,* one of the early pioneers in this subject, has suggested that it may be of the nature of an immunity reaction which may continue some time after cure.

Clinicians are divided on this question. Some advocate continued courses of intensive treatment with salvarsan with the object of

* See postscript.

getting a negative reaction; others hold that such treatment is unnecessary and detrimental to health.

Personally I think that such cases should be kept under observation and tested again later on, but I do not think that intensive treatment is indicated on the sole evidence of a persistently positive Wassermann reaction. There must be a limit to a patient's capacity for "606," and there is no limit to the amount indicated by some enthusiasts. As a matter of fact, the Wassermann reaction is too recent for this question to be decided, as it has been in general use little more than twelve years. We do not know how long the reaction may remain positive, nor do we yet know whether it is those cases with a persistently positive reaction which develop tabes, general paralysis and other late manifestations.

But what we do know—at any rate those who are not in their first youth—is that a multitude of patients who were treated in the pre-Wassermann days (with mercury only) developed no further symptoms, married and had healthy children. It is more than probable that many of these had a persistently positive reaction. It is very likely that the reaction has a tendency to become normal in course of time.

We also know: (1) That the reaction may remain positive in spite of prolonged treatment—for anything we know because of too much treatment; (2) that a positive reaction may become negative without further treatment.

Again, even if a positive reaction signifies active spirochætes, a negative reaction does not exclude them. Warthin found evidence of active syphilis in the post-mortem examination of many patients who had given a negative Wassermann reaction during life.

It would therefore appear unwise to depend upon the sole evidence of the Wassermann test as a guide to treatment. This, and other tests, must be taken in conjunction with clinical experience, the cultivation of which has of late been somewhat neglected.

Postscript.—Since this was written, Dr. Levaditi has informed me that he has renounced this idea, and believes that a positive reaction always signifies living spirochætes; but he admits that this is non-proven.

DIURNAL SOMNOLENCE AND NOCTURNAL WAKEFULNESS AS MANIFESTATIONS OF LETHARGIC ENCEPHALITIS.

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With comments by J. D. ROLLESTON, M.D.

SLEEPINESS occurring in the daytime to so marked a degree as to cause anxiety on the part of the parents must be regarded as uncommon, and the only disease in which I had met with this condition before 1920 had been occasionally in the early stages of tuberculous meningitis. In one case of this disease a boy was brought to the hospital because of unusual drowsiness during the daytime: he would fall asleep during meals or whilst at school. The association of slight headache, occasional vomiting and irregularity of pupils gave a clue as to the cause of the symptoms, and the subsequent course was typical of the disease. Such cases are not uncommon, nor do they present much difficulty in diagnosis. The drowsiness gradually becomes more marked and eventually will pass into the characteristic comatose state, and it is continuous both during the night and day.

The condition with which I am concerned at the present time is one of which I have seen several examples in the course of the last eighteen months. The chief feature is a remarkable degree of somnolence during the day associated with wakefulness during the night, and prior to 1920 no similar cases had come before my notice. Generally the sleepiness did not appear to be associated with any definite constitutional disturbance; in one case, however, of which a brief account follows, the onset was associated with pains in the limbs and diplopia.

CASE 1.—A schoolboy, aged 9 years. Standard II.

He was brought up by his mother on September the 29th, 1920, on account of sleepiness during the day-time. He was said to have been quite well till April, since when he had been very drowsy during the day and sleepless at night. He was able to feed himself, but often fell asleep during meals. At night he would get up and walk about the room, and could not be induced to go to sleep. There was no history of any recent febrile attack, or pains in the limbs; his previous health had been good: measles at five; no history of fits. His father and mother were healthy, and there were eight brothers and sisters, all well.

Present condition.—He was a pale, delicate-looking boy, very drowsy, and kept falling asleep during examination.

Eyes.—Pupils reacted to light and accommodation; no nystagmus, squint or ptosis. Fundi normal.

Glands.—No enlarged glands in the neck or elsewhere.

Heart, lungs and abdomen.—Natural.

Cranial nerves.—Normal.

Reflexes.—Abdominal present; knee-jerks present; plantar reflexes flexor.

Urine.—Specific gravity, 1026. No albumin or sugar.

Temperature, 98; pulse, 90; respirations, 18.

When I first saw the boy my impression was that he would prove to be a case of early tuberculous meningitis. He was admitted to the hospital, and it was soon obvious that such was not the case. During the first few days he was extremely somnolent by day: he would fall asleep during meals, and when sent out to walk in the open air he would fall asleep and drop on the ground. At night-time he would become extremely lively and wide awake, whistling or talking to himself. Large doses of bromide given in the evening did not have much effect in producing sleep till the small hours of the morning, when he would fall into an unnaturally heavy sleep.

On October the 28th lumbar puncture was performed and 6 c.c. of clear fluid withdrawn containing 6 lymphocytes per c.cm. Normal reduction of Fehling's solution; no globulin; albumin less than .01 per cent. (Aufrecht); no organisms found.

On November the 2nd the optic discs were again found to be normal.

On November the 3rd cerebro-spinal fluid 10 c.c. withdrawn and presented normal features and gave a negative Wassermann reaction. The blood also gave a negative Wassermann reaction.

The somnolent condition continued with very little variation until about November the 11th, when improvement was effected by the administration of baths—a tepid bath at 7 a.m. in the morning and a hot bath at 7.45 p.m. He steadily improved from this date, the somnolence by day diminished and he began to sleep normally at night.

The temperature from October the 4th to the 10th showed a slight and varying degree of pyrexia; it was usually 99° F. at night, but on one occasion (October the 5th) rose to 101°.

I have seen him on several occasions since his discharge from the hospital and he is now practically normal.

CASE 2.—In this case there was a definite history of a preliminary

stage accompanied by pains in the limbs and diplopia, the details of which are as follows:

A schoolboy, aged 11 years. Standard VI. Admitted to St. Bartholomew's Hospital on May the 3rd, 1920. His mother complained that he could not be roused in the daytime and did not sleep at night.

He was perfectly well until the beginning of November, 1919, when he complained of feeling cold, and on the third day was put to bed complaining of cold, pains in the knees and ankles, across the pit of the stomach and between the shoulders. He said that he saw everything double. These symptoms continued for nearly a fortnight; during this period he made a peculiar noise in his throat, which he kept up all night and part of the following day. At the end of a fortnight he got up, but he felt cold and shivered and returned to bed. He walked quite well.

Since December his condition has been as follows: He has no inclination to do anything and has to be roused and dressed in the morning. He is always inclined to go to sleep in the daytime; will fall asleep in the midst of eating or dressing; sleeps in unusual attitudes and is afraid to cross roads containing traffic. In the evening he wakes up and is quite bright, but at night cannot be got to sleep and lies awake, frequently blowing his nose. He gets up several times to pass his water and makes curious noises at night, but stops doing so when spoken to, then starts again.

Previous history good. He had pertussis, measles and bronchopneumonia at six months. He gets on well at school and is usually well-behaved and tractable. His tonsils and adenoids were removed on January the 2nd, 1920, and he slept the following night.

Present condition.—When first seen in the Children's Department he looked a healthy, well-developed boy, and no signs of organic disease were found. There was no diplopia, no obvious involvement of the cranial nerves, and the superficial and deep reflexes were normal. The remarkable feature about the case was the somnolent condition: he fell asleep repeatedly during examination; he could be roused without much difficulty but would fall asleep again almost immediately. In order to investigate the case more fully he was taken into hospital for a few days, and it was found that his temperature, pulse and respirations were normal. The urine was normal.

After a day or two he began sleeping well at night and the somnolence by day passed off. During the night, however, he made grunting and blowing noises in his sleep.

On May the 8th, at 2 a.m., he became quite rigid with his tongue curled into the right side of his mouth, and made extraordinary blowing noises. The noise ceased on being roused, and he then went to sleep. He had a similar but shorter attack during breakfast. He was not unconscious.

On May the 18th he was apparently normal except for curious noises made during his sleep.

He has been seen several times since his discharge from the hospital and appears to have completely recovered.

COMMENTS BY DR. J. D. ROLLESTON.

Nocturnal wakefulness as a sequel of lethargic encephalitis has recently formed the subject of numerous papers emanating from pædiatric and neurological clinics in Germany, Austria, Italy and Switzerland. In spite of many articles on lethargic encephalitis published by French writers I have not been able to find any reference to the condition in French medical literature, apart from an isolated case shown by Bremer at the Société de Psychiatrie of Paris on June the 17th, 1920. His patient was a boy, aged 9 years, who was admitted to hospital with typical oculo-choreo-lethargic encephalitis. A long period of lethargy was succeeded by a phase of diurnal somnolence and nocturnal restlessness, and finally by a stage of diurnal hypo-maniacal excitement and attacks of nocturnal mania. The only previous reference in British literature is by Findlay and Shiskin of Glasgow, who regard nocturnal restlessness next to the choreiform movements as the most characteristic feature of epidemic encephalitis. In the United States Happ and Blackfan, of Baltimore, record six illustrative cases in children aged from 4 to 9 years to prove that persistent insomnia is a fairly constant sequel of acute epidemic encephalitis in children.

The most important paper on the subject was written by Hofstadt of the Munich University Children's Clinic in the 'Münchener medizinische Wochenschrift' of December the 20th, 1920. His article is based on observations on twenty-one patients—twelve boys and nine girls, aged from $2\frac{1}{2}$ to 13 years, who for weeks or months were unable to get to sleep before 5 or 6 o'clock in the morning but were in a state of constant restlessness. During the day they were in a more or less normal condition. As the result of their loss of sleep the patients became pale and thin and lost as much as 2 to 6 kgrm. in weight. In five cases the disturbance of sleep occurred after an attack of lethargic or choreiform encephalitis, for which the children

had been admitted to the clinic. In nine other cases there was a history of its having followed "influenza with marked drowsiness," "influenza with choreiform movements," or "cerebral influenza," which undoubtedly indicated a recent attack of epidemic encephalitis. In the seven remaining cases there was no history of any previous disease, but the symptoms were probably the result of epidemic encephalitis, just as many cases of otitis, nephritis and adenitis are due to scarlet fever, although a history of that disease is lacking. Hofstadt remarks that a similar condition as a sequel of lethargic encephalitis had been observed in Heidelberg, Meran and Vienna.

Some months before the publication of Hofstadt's paper Pfaundler had shown a number of children at the Munich Pædiatric Society suffering from insomnia following encephalitis. This symptom had either directly succeeded the encephalitis, or developed after an interval of some weeks. None of the children at the time of the demonstration had completely recovered, although the insomnia had lasted for many weeks. An isolated case of post-encephalitic insomnia was subsequently reported by Janecke of Erfurt in a boy, aged 5 years, in whom it lasted for more than six months after the attack of encephalitis. Heliotherapy and quartz lamp treatment appeared to have a favourable effect, but only by improving the general condition.

Three cases closely resembling those described by Pfaundler, Hofstadt and Janecke were reported by Walter of the Rostock Psychiatric and Neurological Clinic. One of them occurred in a patient aged 17 years—the only case recorded up till then in which the condition had occurred above the age of childhood.

Under the name of "the noctambulic form of epidemic encephalitis" Progulski and Gröbel, of the Lemberg University Children's Clinic, describe similar cases, and remark that there was no relation between the severity of the primary attack and the subsequent insomnia. The acute stage might even be so mild as to escape notice altogether. They allude to other cases reported in Czecho-Slovakia by Brdlik.

In Switzerland cases were reported by Reh from the Geneva University Children's Clinic and by Rütimeyer from the University Children's Clinic at Zurich. Unlike Hofstadt's cases, which at the time of publication had not shown any improvement for weeks or months, both Reh's patients had recovered, one at the end of seven months and the other after eleven months. In each case return of normal sleep set in as the result of an intercurrent disease (measles), independently of all treatment, to which Reh's cases, like Hofstadt's patients, had proved refractory.

In Italy cases have been reported by Francioni of the Bologna University Pædiatric Clinic, Roasenda of the Turin University Institute of Neuropathology, and Zalla of the Institute of Nervous and Mental Diseases at Florence. Two of Roasenda's three patients and four of Zalla's eight cases were adults aged from 16 to 50 years. Zalla noted that in the older patients the insomnia was accompanied during the day by an absolute or relative incapacity for any constant occupation and frequently by a rigidity in the patient's movements. Francioni's cases, in addition to their nocturnal wakefulness, presented during the day a number of psychical symptoms, such as excessive irritability or violence, changes in affectivity, consisting in indifference to their parents, apathy and lassitude. During the period of restlessness preceding sleep the children presented a variety of movements, some of which resembled tics or even hysterical convulsions.

The features common to all the cases hitherto described are the long duration of the nocturnal wakefulness, its association with other manifestations of epidemic encephalitis, and the inefficacy of treatment.

In many of the cases, including those of Dr. Morley Fletcher, there was no history of a characteristic attack of lethargic encephalitis, but it must be borne in mind that epidemic encephalitis, especially in children, is more liable to assume an incomplete form (*forme fruste*) than any other infection, so that the acute stage can readily escape detection.

The first of Dr. Morley Fletcher's cases appears to have been an example of the ambulatory type of lethargic encephalitis, of which several cases have been reported, especially in children. The nocturnal wakefulness in this case was a symptom, whereas in the second case, in which there was a febrile stage with diplopia, it was a sequela. The symptom presented by the second patient of peculiar grunting and blowing noises may probably be grouped with the variety of myoclonic movements occurring in epidemic encephalitis, which include hiccough, yawning, sighing, spasmodic laughter, etc., and were particularly noted in Francioni's patients.

The pathogenesis of nocturnal wakefulness following encephalitis has not yet been fully explained. Zalla suggests that it is due either to a toxin produced by the unknown virus of epidemic encephalitis, or to residual anatomical changes in definite areas of the brain.

According to Progulski and Gröbel the symptoms are primarily caused by an organic lesion, but functional factors also enter into

their causation. Francioni also attributes considerable importance to a neuropathic predisposition. .

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A FATAL CASE OF EMACIATION IN A GIRL AT ABOUT THE PERIOD OF PUBERTY, WITH GENERAL VISCEROPTOSIS, HYPOTONICITY OF THE STOMACH, AND ACHYLIA GASTRICA.

By F. PARKES WEBER, M.A., M.D., F.R.C.P.Lond.

THE case that I wish to record here is a somewhat complicated one, and the diagnosis of anorexia nervosa would certainly be disputed. Thus, in regard to anorexia nervosa I will quote I. Boas, ‘Diseases of the Stomach,’ English-American edition, by A. Bernheim, Philadelphia, 1907, p. 625:

“Diagnosis is easy as soon as nervous symptoms are manifested;

more difficult when such is not the case or some changes are concomitant. Furthermore, the picture may be obscured by simultaneous presence of organic diseases, such as gastric atony, displacement of kidney, liver and other viscera. In all cases where the diagnosis, nervous anorexia, is to be made plausible, organic gastric affections, all of which may be accompanied by more or less marked loss of



FIG. 1.

appetite, must be excluded. Above all, for instance, we have to think of chronic gastritis."

In the present case there was certainly general visceroptosis with an atonic or hypotonic stomach, and probably a condition of achylia gastrica and so-called atrophy of the gastric glands after chronic gastritis. One could, therefore, in this case scarcely have carried out artificial feeding by the method of *garage* (Boas, *op. cit.*, p. 627). Neither could one well have adopted Fleiner's treatment for anorexia

nervosa, as referred to by Franz Riedel, 'Diseases of the Stomach,' Nothnagel's 'Practice,' American edition, 1903, pp. 804-806 :

"Anorexia nervosa. . . . In this place we cannot, of course, discuss all those forms of anorexia that are due to organic diseases of the stomach, nor can we discuss those cases in which the patients do not eat because they know that they will suffer distress as soon



FIG. 2.

as food enters the stomach. Patients of the latter class do not suffer from loss of appetite, and do not refrain from eating because the appetite is reduced, but merely because they are afraid of the pain. . . . Fleiner recommends the introduction of water that is heated to blood-temperature into the stomach in order to distend the organ and to stretch the contracted walls of the organ."

In the present case the stomach did not need distending! How far there was any primary nervous anorexia is uncertain. The patient had certainly suffered from pain and discomfort on eating.

Now, regarding "achylia gastrica" and chronic atrophic catarrh of the stomach, I will again quote from Riedel (*op. cit.*, pp. 538-539):

"The absence of all local symptoms and all gastric disturbances is of no value from the point of view of the differential diagnosis, for all subjective and local symptoms may be absent, and frequently are absent, in subacidity and anacidity due to atrophy. . . . Primary atrophy, as a rule, develops slowly and gradually, for it represents the terminal stage of a long-lasting chronic gastritis, or

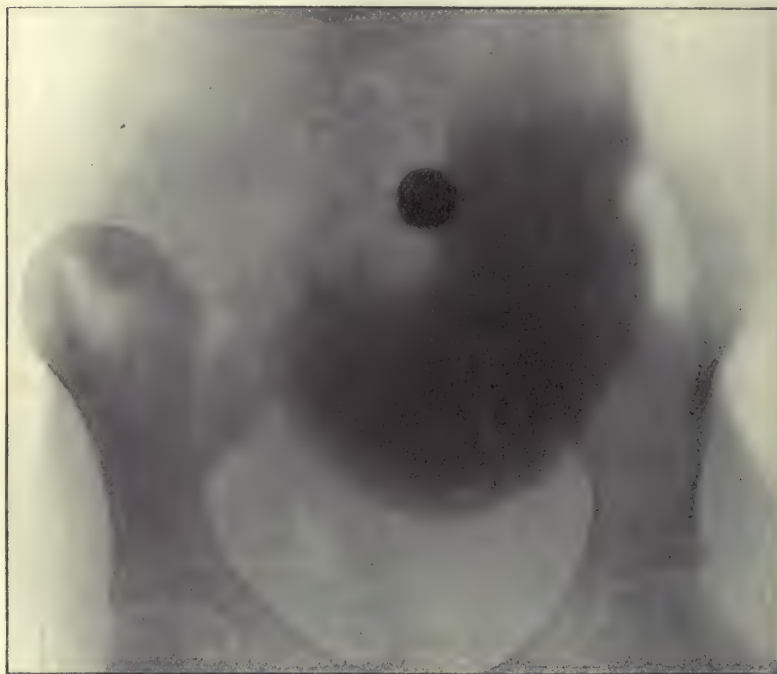


FIG. 3.

is the result of toxic gastritis." In regard to prognosis in the various classes of achylia gastrica, Riedel (*op. cit.*, p. 537) writes: "Secondary atrophy in carcinoma has the same prognosis as carcinoma itself. . . . The prognosis of the genuine primary form of achylia gastrica is more favourable; this condition may persist for many years without serious impairment of the general health, provided, of course, the motility of the stomach remains intact and the functions of the intestine remain normal."

But in the present case the motility of the stomach was certainly not intact. The patient was a girl, aged 16½ years, when I saw

her first, on February the 27th, 1920, in consultation with Dr. R. R. W. Oram and Dr. C. E. Lakin, and it is by their kind permission that I now give an account of her condition. I was able to have various examinations carried out between February the 29th and March the 7th, 1920, in the private portion of a hospital. There was never any fever, the temperature being mostly



FIG. 4.

about 98° F.; the pulse varied between 54 and 76 per minute, and the respiration between 18 and 24 per minute. The urine was acid, and free from albumin; the specific gravity was mostly about 1010, and the daily quantity, according to the chart, was about 500 c.c. on the average. The fæces (scanty) were of brown colour and normal consistence, not fatty in appearance. A report of the estimation of fat in the fæces and a report on the urine (both by Dr. E. L. Kennaway, in December, 1919), kindly sent to me by Dr. Lakin,

showed the total fat in the fæces (fat, free fatty acid, soap) to be 9.2 per cent. (not in excess). Indican was present in the urine, but not abnormal in amount; there was no diacetic acid; the diastatic power was estimated at about 60 units (upper normal limit is 33 units). Constipation was complained of (cascara tablets taken every night); seldom any diarrhoea. The patient had a great dislike to any fatty meat.

Examination of the gastric contents after an Ewald's test-breakfast (March, 1920), showed absence of free hydrochloric acid, and the total acidity was only 12.

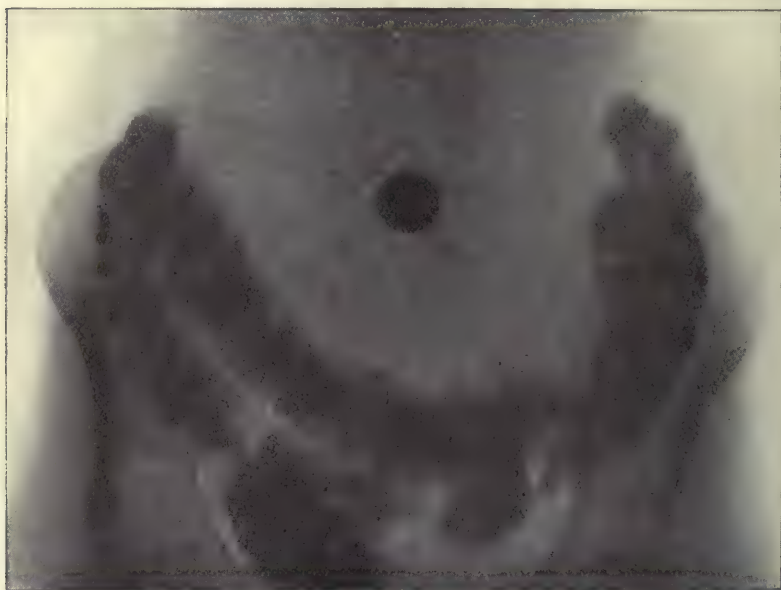


FIG. 5.

Röntgen-ray examination showed a condition of general visceroptosis (Dr. James Metcalfe, March, 1920). In a skiagram of the thorax the heart appeared narrow and low down—the so-called “hanging heart” (Fig. 1), a kind of “ptosis of the heart.” Skiagrams of the abdomen after a barium-meal showed, in the recumbent position, a very dilated stomach (Fig. 2); in the upright position of the body the stomach was ptosed (Fig. 3), the lowest part of the greater curvature being 10 cm. below the umbilicus (which in all the skiagrams was marked by a farthing, seen as a black circular disc in the illustrations). In its motor efficiency the stomach was imperfect, some of the barium-meal being present in the stomach

after five hours (Fig. 4). The skiagram taken after twenty-four hours (Fig. 5) showed the stomach empty, but it likewise showed marked ptosis of the transverse colon and the whole of the colon full of the barium-meal.

There had been some question of so-called lipodystrophia progressiva,* and the patient was extremely thin—"all skin and bones"—as if almost all the subcutaneous fat had disappeared (see Figs. 6 and 7); but the loss of fat differed from that seen in lipodystrophia progressiva, inasmuch as it affected the whole body and limbs (not merely the trunk and face and upper extremities, as in lipodystrophia progressiva), and had been observed in the body before it was observed in the face. I understand that later on the



FIG. 6.

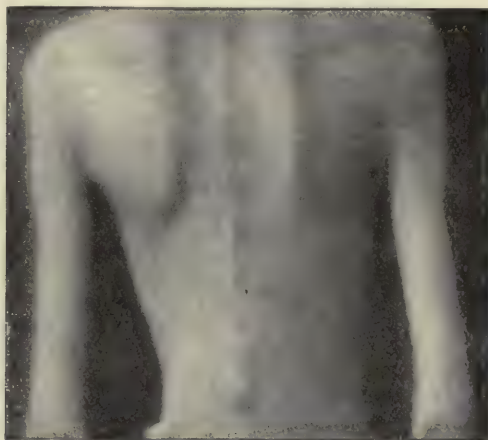


FIG. 7.

general emaciation became still more marked, in fact, that it became altogether extreme, and was accompanied by increasing feebleness. In February and March, 1920, the patient was not obviously feeble in her movements and in her body or mind. She took a normal interest in everything about her. In regard to sleep, she said she used to wake up frequently during the night.

Body-weight (commencement of March, 1920), 23·7 kgrm.; height, 158 cm.; circumference of thorax in expiration, 55 cm.; circumference of thorax in inspiration, 60 cm.; circumference of abdomen at umbilical level, 46 cm.; smallest circumference of abdomen, 44 cm. The abdomen was rather "sunken." The long, thin, "bony" fingers were a feature of the case. The general

* Cf. F. Parkes Weber, 'Lipodystrophia Progressiva,' London, 1918; also Weber and Gunewardene, *BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1919, xvi, pp. 89, 200.

development was somewhat infantile or retarded. She had never menstruated. There was no swelling to indicate the presence of mammary glands. There was no axillary or pubic hair. The skin was dry and rather sallow, but there was no anæmia. In some parts—for instance, in the gluteal regions—the skin had a slightly senile appearance. A blood-count (by Dr. Stanley Wyard, in December, 1919), kindly communicated to me by Dr. Lakin, gave: Erythrocytes, 5,100,000, and white cells, 4200 to the c.mm. of blood; hæmoglobin, 95 per cent.; colour-index, 0·9. Of the white cells, the polymorphonuclear leucocytes were 59·0 per cent.; large lymphocytes, 6·0 per cent.; small lymphocytes, 31·0 per cent.; hyaline cells, 1·5 per cent.; “transitional” cells, 2·5 per cent. The erythrocytes were normal in size, shape and staining.

The patient had the most extreme condition of “erythema ab igne” (reticulated erythema with pigmentation) of the front of the legs (from warming herself at the fire) that I have ever met with. Evidently she felt the cold disagreeably. By ordinary examination (of the viscera, etc.) I noted nothing else special. The brachial systolic blood-pressure was 100–116 mm. Hg. There was no suspicion of inherited syphilis.

The patient was one of a family of three children, the other two being quite healthy and normally developed (a boy, aged 12 years, and a girl, aged 10 years). The mother had had no miscarriages and had lost no children. Both mother and father looked healthy, but rather thin. There was no history of mental disease in the family. The patient's emaciation was said to have gradually developed (noticed in the body before it was noticed in the face) during the past two years, preceded by attacks of “indigestion.” If she were to eat much she said she would have pains—“the whole of her inside would be boiling and working.” A photograph of her taken in 1914 showed a quite normal child, but a photograph in 1918 showed her with a much thinner face and with “skinny” fingers. The face in a photograph of 1916 would still have passed as normal. At school she had always taken a good place in her class. She had always been “a poor eater,” and had always been inclined to feel chilly, with a tendency to cold hands and feet. She used to be subject to chilblains on the feet and hands (not on the ears), but had not suffered in that way during the last three winters.

I suspect that the dietetic restrictions owing to the war may have played some part in initiating the digestive troubles in the present case—in a patient predisposed to suffer, owing to a “visceroptosis type” of build, and just entering on the critical period of puberty.

I never saw the patient after March 7th, 1920, but I afterwards heard that she took less and less food, and became still more emaciated. She complained of feeling sick if she ate much, and once at least she actually vomited. She died (apparently from exhaustion) on December 8th, 1920. No necropsy was obtained. It is a question whether treatment away from home (if the parents had consented), for instance, a kind of Weir-Mitchell treatment, might not have done good.

THE TREATMENT OF PROLAPSE OF THE RECTUM IN INFANCY AND CHILDHOOD BY THE INJECTION OF ALCOHOL.

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WHILE resident in Geneva during the winter of 1919-1920 and visiting the clinique of Prof. D'Espine, I was introduced to a method of dealing with prolapse of the rectum in children which I had not seen described in the text-books, and which, from conversations with surgical colleagues, would not seem to be generally known.

Prolapse of the rectum has always been admittedly a troublesome condition to treat. My experience of dispensary practice is that it is one of which both the physician and surgeon fight shy. The physician is in the habit of referring the case to the surgeon, who almost habitually returns it again to the physician for general tonic treatment before he will consider the question of operative intervention. All sorts of devices have been suggested for the malady. In the 'Lancet' of February the 5th Lockhart-Mummery advocates the obliteration of Douglas's pouch, and in a subsequent correspondence the injection of paraffin was recommended by Burgess, with the idea, I suppose, of forming a kind of permanent pessary.

In view of the simple procedure which I am about to describe, and the most excellent results which it has produced in my hands during the last eight or nine months, I am inclined to consider such an operation as the above, as well as many of those described in our text-books, *e.g.* cauterisation of the bowel, taking in a reef in the sphincter, etc., as quite unwarranted, at least in the case of the child.

The method which I saw practised in Geneva was the injection of alcohol into the submucous tissues on either side of the rectum. As the operation must be performed under an anæsthetic the patient is prepared in the usual way by administering a purgative, and, if necessary, complete clearing out of the bowel by means of an enema. The perinæum is cleaned with methylated ether and disinfected with iodine. With the finger in the rectum, so that one is able to gauge the position of the point of the needle, 1·5 c.c. of absolute alcohol are injected on either side at a depth of about 3 in. The needle, an ordinary exploring needle, with syringe containing the necessary amount of alcohol attached, is introduced about $\frac{1}{4}$ in. from the anal margin, and passed along the side of the bowel a distance of $2\frac{1}{2}$ to 3 in., where the alcohol is injected. This is done on either side. The punctures are sealed with collodion, a fairly large pad applied, and the buttocks firmly strapped together. Instructions are given that the child must not be allowed to sit up to defæcate, and the motions are passed along the side of the pad while lying in bed. Fresh dressings are applied daily for seven to ten days, by which time it is usually found safe to discard them.

During the past nine months I have treated some twenty-two children between the ages of five months and seven years suffering from different degrees of prolapse of varying duration; in some cases the prolapse had been of several years' duration. In the majority of the cases the prolapse was intermittent and only occurred when the bowels moved, but in all required manual reduction. In several of the children, however, the prolapse was constant, and in one case had been persistently down for a period of nineteen months. In this latter case the motions were always diarrhœal in character, and strapping of the buttocks, with the child lying on its face, had been practised for long periods without any benefit resulting.

In practically every case a complete cure has been obtained. In several the prolapse returned, requiring a second injection, and in one child a third injection was necessary before a cure was obtained. In one case the prolapse was apparently due to the presence of a small polypus, which was removed at the same time as the second injection of alcohol was given.

It is usually recommended that if diarrhœa be present this should receive attention in the first place. As a result, however, of my recent experience I am inclined to consider it absolutely futile to attempt to cure the diarrhœa before the prolapse. It would seem that it is the prolapse which keeps up the diarrhœa and not *vice versa*. This was so at least in many of the cases. In the child

previously referred to in whom the prolapse had been down for nineteen months the motions were constantly loose, whereas immediately after the cure of the prolapse the diarrhœa ceased, the motions becoming quite normal, and the child commenced, for the first time, to increase in weight. The occurrence of diarrhœa is

PROLAPSE CASES.

No.	Name.	Age.	Duration of prolapse.	Date of operation.	Date last seen.	Results.
1	T. M—, girl	10 mths.	? 2 mths.	5:5:'20	29:1:'21	Down once (during whooping-cough).
2	M. C—, girl	1 yr. 9 mths.	1 yr. 7 mths.	5:5:'20 11:9:'20	28:1:'21	Down once since last injection.
3	M. D—, girl	5 mths.	5 days.	7:8:'20	5:2:'21	No return.
4	M. T—, girl	3 yrs.	18 mths.	26:8:'20	5:3:'21	Down once with severe straining.
5	M. M—, boy	1 yr. 11 mths.	1 mth.	31:8:'20	29:1:'21	No return.
6	J. M—, boy	1 yr. 8 mths.	2½ mths.	20:9:'20	24:12:'20	Partially down since (29:9:'20).
7	M. T—, girl	2 yrs. 5 mths.	3 weeks.	29:9:'20 2:10:'20 20:10:'20	24:12:'20	Not down after last injection.
8	R. O—, girl	4 yrs.	2 yrs.	2:10:'20	29:1:'21	No return.
9	N. D—, girl	2 yrs.	5 mths.	6:10:'20	29:1:'21	"
10	A. F—, boy	3 yrs.	1½ yrs.	16:10:'20 2:2:'21	4:3:'21	Prolapse returned after first injection. Polypus removed and came down once since.
11	R. S—, boy	5½ yrs.	Since infancy	20:10:'20	29:1:'21	No return.
12	E. N—, girl	2½ yrs.	"	20:10:'20	29:1:'21	"
13	M. A—, girl	5 mths.	Constantly down for 1 week to extent of 3 or 4 in.	26:10:'20	3:11:'20	"
14	R. P—, boy	2½ yrs.	3 mths.	27:10:'20	5:2:'21	"
15	M. R—, girl	3 yrs.	1 yr.	10:11:'20	11:2:'21	"
16	S. M—, girl	3 yrs.	3 weeks.	24:11:'20	15:12:'20	"
17	E. H—, boy	1 yr. 6 mths.	2 mths.	1:12:'20	5:2:'21	"
18	M. C—, girl	13 mths.	2 mths.	15:12:'20	5:2:'21	"
19	L. H—, boy	3 yrs. 1 mth.	1 yr.	15:1:'21	1:2:'21	"
20	L. F—, girl	2 yrs. 8 mths.	2 mths.	26:1:'21	12:3:'21	"
21	W. C—, boy	3 yrs. 5 mths.	1 yr.	5:2:'21	13:2:'21	"
22	C. K—, girl	2½ yrs.	3 weeks.	15:2:'21	12:3:'21	"

quite understandable when one recollects that ulceration with considerable consequent irritation not infrequently results from injury to the prolapsed bowel.

There are two factors which, in my opinion, are responsible for the cure by this method of treatment. It would seem likely that at the seat of the injection there results a certain amount of irritation, with the formation of fibrous tissue and a probable fixing of the

bowel-wall to the tissues of the pelvic cavity. I have made many examinations *per rectum* at varying periods after the injection to see if one could detect any evidence of thickening, but so far as I can judge no induration or stenosis of the bowel results. The other factor which, I think, plays a part in the cure is a return of tone to the sphincter. In all cases of prolapse the tone of the sphincter is much impaired, amounting to a paresis in the intermittent cases and to a complete paralysis in those cases where the bowel is constantly prolapsed, due to the stretching influence of the protruding mass of rectal tissue. By reduction of the prolapse the strain is removed from the muscle, which gradually contracts and regains its tone and power—a point which, to my mind, materially helps in consolidating the cure. In my experience the sphincter has quite regained its tone within a matter of ten days. In this connection one is very much reminded of the newer methods of treating infantile paralysis by avoiding all stretching of the affected muscles.

Details of all the cases treated are given in the table on p. 85.

A CASE OF DIPHTHERIA OF THE PENIS, WITH PARALYTIC SEQUELÆ.

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It is universally acknowledged that diphtheria of the throat or nose not uncommonly gives rise to secondary infection of the genitals, but true "primary" infection of the penis seems to be distinctly rare. The following case, therefore, may be of interest, inasmuch as the penis seems primarily and alone to have been affected, and post-diphtheritic paralysis of a severe type developed, as though from an acute faucial attack.

A boy, aged $3\frac{1}{2}$ years, was admitted to the North-Eastern Fever Hospital, Tottenham, on October the 22nd, 1920, suffering from "diphtheria of penis."

The source of infection could not be traced. The patient was an only child; the parents enjoyed good health, and no cases at the same time were found in the hospital from which he was admitted.

The previous history showed that the child, at the age of five weeks, had been taken to Hampstead Hospital for "stoppage of the bowels." There was then discovered the need for circumcision, which was

performed a week later. The wound healed very slowly but completely. The child thereafter enjoyed good health until he was $3\frac{5}{12}$ years old.

On October the 4th, 1921, he was seized with sickness, vomiting, and pain in the abdomen. Acute appendicitis was diagnosed, and an operation performed at the Hampstead General Hospital on October the 6th, 1921. An abscess was found, which was drained.

October the 7th: The penis became slightly puffy, and this puffiness increased daily till the 12th.

October the 12th: An incision was made, but without any appreciable benefit.

October the 16th: Several incisions were made in penis.

October the 18th: General condition seemed bad. Abdominal wound discharged freely. The penis was swollen and red.

October the 21st: Culture from penis revealed presence of diphtheria bacilli.

October the 22nd: Child removed to North-Eastern Fever Hospital.

On admission the penis was inflamed and cedematous. The glans and corona were completely covered with a large greyish membrane. The scrotum was red and swollen, and over the root of the penis was a zone of tenderness and redness. The inguinal glands were slightly enlarged. The throat and nose appeared healthy. The abdominal wound was angry, foul and malodorous. Cultures were taken from the throat, nose, abdominal wound and penis.

October the 23rd: After twenty-four hours' growth cultures from the throat, nose and wound were negative, and from the penis positive for K.L.B. 18,000 units of antitoxin were given.

The child seemed profoundly ill and thoroughly "toxic." The tip of the penis presented a large sloughing mass. The throat appeared normal. The heart-sounds were pure and regular, both in force and rhythm.

October the 24th: The membrane began to separate from the glans, but the penis itself seemed more swollen and inflamed. 15,000 units of antitoxin were given.

The abdominal wound continued to discharge, and the edges were angry and inflamed. Cultures of the throat, wound and nose negative.

October the 25th: Cultures of the throat, nose and wound negative. Child's condition same.

October the 26th: Abdominal wound looked cleaner. Penis and scrotum remained very inflamed, but swelling subsiding.

October the 30th : Slough separated from glans and corona.

November the 9th : Granulations well formed over penis. Pulse reported irregular. Heart-sounds showed irregularity in force and rhythm.

November the 16th : Child became "nasal" and had some difficulty in drinking fluids. Squint of left eye.

November the 17th : Considerable difficulty in drinking—spluttering. Voice more nasal.

November the 21st : There appeared to be an accumulation of mucus secretion in the pharynx. Abdomen moved only very slightly with respiration. Colour poor. Heart-sounds distant, feeble, and markedly irregular.

November the 26th : Less mucus in throat. Heart's action less rapid and more regular.

December the 4th : Abdomen moved freely. Voice less nasal. Palate moved well, and child swallowed more comfortably.

December the 11th : Only very slight coughing on drinking. Abdominal wound clean. Very little discharge. Healing.

December the 18th : Heart quite regular. No difficulty in drinking. Voice only slightly nasal.

December the 29th : Abdominal wound almost healed. Penis now quite healthy. Very slight glairy discharge from meatus. No nasal voice. Squint disappeared. Cultures (twenty-four hours' growth) from throat, nose, and wound negative and from penis positive.

January the 12th, 1921 : Child very well, but unable to walk. Three successive cultures from penis proved negative.

From this time onward there was uninterrupted progress, and the child was discharged well on February the 19th.

REMARKS.

The question might be asked whether this constituted a true primary diphtheria of the penis, or a "wound diphtheria" following on the incisions made for the local œdema. In reply I must state that every personal source of infection was investigated—ears, eyes, nose, throat, abdominal wound—and at no time could diphtheria bacilli be found, except from the organ itself. Moreover, what was then the cause of the œdema if not the diphtheritic process? Again, the extensive yet typical membrane was noteworthy.

Ker cites only one primary case, and that after a circumcision. In this instance the child had been circumcised three years previously.

Further, it would appear that paralysis of a severe type may follow diphtheria of the genital organs, even with comparatively large doses of antitoxin, due allowance being made for the day of disease in the administration.

I am indebted to the Medical Superintendent, Dr. Thomson, for permission to publish the notes on this case, and also to the Hampstead General Hospital for the history prior to admission to the North-Eastern Hospital.

EMPYEMA OF THE MAXILLARY ANTRUM IN AN INFANT.

By E. E. HUGHES, Ch.M., F.R.C.S.,

Visiting Surgeon, Manchester Children's Hospital.

A MALE baby, aged 3 weeks, was brought to the Manchester Children's Hospital on account of a swelling on the left side of the face.

History.—The child was delivered by instruments, and was a vertex presentation. The present condition, which had come on gradually, probably had its origin in birth injury.

Condition on admission.—There was a marked swelling, with redness and œdema of the cheek and lower eyelid on the left side. Over the centre of the superior maxilla there was a sense of fluctuation and egg-shell crackling. Other signs included profuse left-sided nasal discharge, proptosis and slight epiphora, unilateral bulging of the palate, and a discharge of foul pus into the oral cavity through the upper alveolus on the left side.

Treatment.—An incision was made into the upper alveolus to widen the exit for the pus, a large quantity of which was evacuated on pressure over the affected cheek. A couple of unerupted teeth were unavoidably removed during this procedure.

After-treatment.—The abscess-cavity was daily irrigated through the alveolus and the discharge rapidly lessened. At the end of three weeks the child was sent home completely recovered.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, November the 26th, 1920.

The President, Dr. F. LANGMEAD, in the Chair.

Case for Diagnosis.—Dr. E. A. COCKAYNE showed a boy, aged $4\frac{3}{4}$ years, 37 in. in height. Sallow complexion. Scanty dry fair hair. Skin lacked firmness, leucodermia present; nails a little thin. He had only seven milk teeth, two incisors, four canines, all broad at the base and tapering to a sharp point, and one molar with sharp points on the crown. Wassermann reaction negative.

Two Cases of Diabetes Mellitus of an Unusual Type.—Dr. GEORGE GRAHAM.—CASE 1.—Girl, aged 11 years.

History of present illness.—In January, 1916, began to be thirsty and to lose weight; pruritus vulvæ gradually developed. In May, 1916, glycosuria was detected, and she had been in hospital ever since. The sugar excreted on admission was about 90 grm. per day. It disappeared after two starvation days, and her sugar tolerance seemed to be about 50 grm. During the next three years treatment was always complicated by her skill in obtaining carbohydrate food from the other children. Height on admission not known; weight was 2 st. 3 lb. June, 1918, weight 2 st. 10 lb. July, 1919: Weight 2 st. 12 lb. (19 lb. below Galton's average); height, $43\frac{1}{2}$ in. ($6\frac{1}{2}$ in. below Galton's average). January, 1920, weight 2 st. $11\frac{1}{2}$ lb. (22 lb. below Galton's average); height $44\frac{1}{2}$ in. ($6\frac{1}{2}$ in. below Galton's average). October, 1920, height 47 in.

By January, 1920, she had become a well-proportioned child. Colour of skin a peculiar yellow varying in intensity. Pituitary fossa 8 mm. long and 6 mm. deep. Long bones showed transverse striation at ends.

The effect of a dose of 15 grm. of sugar was tested in January, 1920. The fasting value was 0.16 grm. per cent., and at the end of one hour it was 0.29 grm.; after two hours, 0.25 grm.; after three hours, 0.225 grm. A trace of sugar was passed in the first two hours and none in the third hour.

In October, 1920, she was very well, and very rarely passed sugar, as a starvation day followed automatically each time she stole bread. Her sugar tolerance was about 70 grm. on a diet containing 68 grm. of fat, 38 grm. of protein, 70 grm. of sugar, and 1100 calories. She had to have a starvation every twenty-six days.

CASE 2.—Girl, aged 9 years.

History of present illness.—Began to be thirsty in October, 1918, and developed pruritus vulvæ. Sugar was discovered, and she was admitted to the hospital. The total sugar output was about 60 grm. per day. She had been treated with periods of starvation and egg and vegetable days, but was exceedingly difficult to keep sugar-free, three eggs, 300 grm. of green vegetables and 25 grm. of butter—that is 35 grm. of fat, 5 grm. of protein, 12 grm. of sugar and 400 calories—being all that she could eat without

passing sugar. She was small and well proportioned, with a peculiar yellow tinge of the skin which varied from time to time.

October, 1919: Height, $38\frac{1}{2}$ in. (7 in. below Galton's average); weight 30 lb. (20 lb. below Galton's average). She had not grown during the last year and was of the same weight. Pituitary fossa was $8\frac{1}{2}$ mm. long and 7 mm. in depth. Long bones with transverse striation at lower ends.

The sugar tolerance—10 grm. of sugar on July the 13th, 1920. Fasting value of blood-sugar, 0.13; after one hour 9.25, and after two hours 9.3. Amount of sugar excreted very small: 0.1 grm. in first hour, 0.15 grm. in second hour and 0.2 grm. in third hour.

She had now been out of hospital three months and did not appear much worse, but she usually passed sugar. She had a starvation day each week.

Recurrent Facial Paralysis.—Dr. F. LANGMEAD.—Her mother stated that the girl had had three attacks of facial paralysis, always first noticed in the morning. The first, when she was a baby, lasted a few days and then cleared up completely. The second, about a year ago, equally transient. The present had lasted several weeks. There was no evidence of ear disease.

Osteogenesis Imperfecta.—Dr. F. LANGMEAD also showed a boy, aged $6\frac{1}{2}$ years. Birth easy, no abnormalities noted. Twin, illegitimate, and fed for first two years on Nestlé's milk and Neave's food. Nothing abnormal was noted by grandmother until he failed to begin walking or moving about at usual time. Always languid, pale and irritable, and failed to thrive or grow. Up to now he had never walked, and when sat up had always wanted to lie down, crying and seemingly in pain. Had had frequent "colds"; no other illness noticed.

On admission to hospital very pale, deformed and undersized; total length only 29 in. Eyes prominent and face looking pained and careworn. Head large, square, and bossed, measuring 19 in. in circumference, or about two-thirds of the body length. Signs of rickets pronounced. Chest distinctly rachitic, with ribs steeply beaded. Much kyphosis and some scoliosis. Epiphyses excessively enlarged and bones curved. General muscular hypotonia with laxity of joints present. This was well seen in metacarpophalangeal joints, where considerable hyperextension was possible. Fractures of left humerus and in both femora, and greenstick fracture of left clavicle. He cried if manipulated, and was only comfortable when lying down.

Blood picture.—Red corpuscles, 2,827,000; hæmoglobin, 48 per cent.; colour index, 0.89; white cells, 6800; of the latter 43 per cent. are polymorphs, 42 per cent. small lymphocytes, 12 per cent. large lymphocytes, 3 per cent. large mononuclears. Much polychromatophilia and slight poikilocytosis. Skiagrams showed clear-cut fractures of long bones surrounded by a large amount of callus at points where bending was greatest.

Malformation of Face, Ear, Eye and Hand.—Mr. B. WHITCHURCH HOWELL (for Dr. DRU DEURY) showed photographs of a male infant, who was the third of three male children, born at full term. The parents and brothers were in all respects healthy. The mother's family yielded an uncle of the patient, of defective mentality, and a doubtful account of an aunt with "lumps on the back of the head," supposed to resemble the ear of the patient. No further indications of "bad stock" could be elicited.

Medical assistance was called after the birth because the child had a double thumb on the right hand and a deformed ear. It was evident that

more was involved than an imperfectly formed auricle, for in place of an external meatus there was a shallow pit lined by skin, and from the angle of the mouth to a point just below the pit ran a white line, as straight as if ruled, which was inelastic, was shown when the child cried, and as plainly due to imperfect fusion of the mandibular and axillary portions of the face. Finally, the outer third of the conjunctiva of the left eye was piled up in a dull white puckered tumour attached to the limbus of the cornea, like a huge pterygium, and later on prevented satisfactory closure of that eye.

The extra two phalanges were removed from the thumb on the fourteenth day, and no deformity persisted. Two anterior tubercles of the auricle were ligatured at the same time and cut off, the stumps healing well. The tubercles contained cartilage. Neither the eye condition nor the external meatus were interfered with.

The child now (one year) showed marked facial asymmetry, but was healthy, strong, apparently of normal intelligence, but it was not possible to decide yet whether there was any hearing on the left side.

Case of Deformity of the Skull with Bone Changes and Corneal Opacities.—Dr. REGINALD C. JEWESBURY and Dr. J. C. SPENCE.—Boy, aged 5 years. Parents healthy. One other child, aged 1 year, quite normal. A paternal uncle had deformities of the hands; this was the only instance of other cases of deformity in the family, going back for three generations.

The patient weighed 12 lb. at birth; labour difficult and prolonged, forceps delivery. No evidence of birth injury. Deformities of the fingers and corneal opacities present from birth. Backward in every way: walked at two years, began to speak at four years. Affectionate, but subject to fits of temper.

The boy presented a curious appearance: the cranial vault was abnormally high (acrocephaly); the face unusually broad and a slight degree of proptosis. Eyes—uniform faint corneal opacities; fundi could be seen clearly. Symmetrical deformity of fingers of both hands; terminal phalanges were flexed and the fingers could not be straightened. Some limitation of movement at elbow-joints. Intelligence poor, but he was not mentally deficient. Speech indistinct and “babyish” in type. Fond of music; could sing in tune. Habits clean. Central nervous system, *nil* abnormal. Wassermann reaction negative.

X-ray showed abnormal shape of head with some alteration in size and shape of pituitary fossa, also alteration in shape and structure of metacarpals and phalanges.

Lesion of the Crus Cerebri in a Girl, aged 7 years.—Dr. JEWESBURY.—In July, 1920, her memory appeared to be affected. One month later the left pupil became dilated, followed a little later by ptosis of the left eyelid. In September, 1920, a right-sided hemiplegia gradually appeared. The condition had been gradually progressive. She now showed a complete third nerve paralysis on the left side with a hemiplegia on the right.

Case of Œsophageal Obstruction in a Girl, aged $4\frac{1}{2}$ years.—Dr. JEWESBURY.—The child had never been able to swallow solid food from birth, but had no difficulty with fluids. A bougie could be passed $5\frac{1}{2}$ in. from the teeth. X-ray with bismuth meal showed large shadow at lower end of Œsophagus.

Philadelphia Pediatric Society.

November the 9th, 1920.

J. CLAXTON GITTINGS, M.D., *President, in the Chair.*

Some Interesting Pædiatric Cases, with a New Method of Bacteriological Study and Treatment.—Dr. MEYER SOLIS-COHEN read this paper, which was a report of bacteriological studies of four cases, based on a test for immunity and susceptibility described by the writer in conjunction with Drs. Geo. D. Heist and Solomon Solis-Cohen. From their studies they concluded that the blood of human beings possesses bactericidal power against large numbers of organisms; that the blood of an individual differs in its bactericidal power against different organisms; that bactericidal power against a particular organism varies in different individuals; that in the discharge of an infected area organisms can be usually found against which the blood of the infected person has little or no bactericidal power; that frequently in such discharge or on such area other organisms are found against which the patient's blood has good bactericidal power; that organisms which are supposed to grow well in human blood fail to grow at all in the blood of some individuals; and that organisms which are supposed to grow poorly or not at all in human blood may grow with the greatest vigour in the blood of some individuals.

The practical object of his studies was to make vaccine therapy more specific. It was believed that the failure of autogenous vaccine treatment might be due sometimes to failure to include the ætiological organisms in the autogenous vaccine, and that certain harmful effects might be due to the injection of unnecessary foreign protein in the form of organisms that have no part in the infection. He regards the object of vaccine treatment to increase the bactericidal power of the blood against the infecting organism.

In the four cases which Dr. Solis-Cohen reported an earnest attempt was made in each to discover the infecting organism. Three received vaccines containing only those organisms present against which the patient's blood lacked bactericidal power; to the fourth serum was given.

CASE 1.—Baby girl, aged 14 months. Intermittent attacks of fever as high as 104° to 105° F., with whining cry and discomfort. Physical examination was negative except for a furunculosis chiefly over the buttocks. A culture on blood-sugar was made from the child's urine, which showed pus, and from a papule on the buttocks. *Staphylococcus albus* and *Staphylococcus citreus* were isolated from both. A broth culture of each organism was diluted 1:10, 1:100, 1:10,000, and each dilution was allowed to run in and out of a separate capillary tube, which was then filled with the baby's blood and sealed. After twenty-four hours' incubation the tubes were broken and a drop of each stained and examined under the microscope to see if any organisms were present. *Staphylococcus citreus* had grown well in most of the tubes, but *Staphylococcus albus* had practically disappeared. A vaccine was prepared from *Staphylococcus citreus*.

Thirteen doses of vaccine were administered at five-day intervals, the dose being one hundred million, two hundred million, four hundred million, eight hundred million, and thereafter a thousand million. The baby improved in health and appearance after the first dose. The crying spells with fever,

etc., gradually diminished. The furunculosis cleared up. In the past year the baby has been free from all symptoms and the urine remained clear.

CASE 2.—Girl, aged 6 years. Attacks of fever with urgency to urinate. Urine showed pus-cells in large numbers and the hæmoglobin was 60 per cent. Diagnosis: Pyelocystitis.

Blood-agar culture of a catheterised specimen of urine contained *B. coli* and *B. lactis aerogenes*, both of which grew in the child's blood, the former more vigorously. This is the more remarkable, as *B. coli* does not as a rule grow in human blood. A vaccine was made of both organisms. Eight injections were given at weekly intervals. First dose was twenty-five million, next three doses were fifty million, then two doses of sixty million, and finally two doses of seventy-five million. Hexamethylenamine and liquor potassii citratis were also administered. There was distinct general improvement with a gain of $5\frac{3}{4}$ lb. in seven weeks. Three months later the urine showed only a few leucocytes, and the child had been free from pain or urgency when the bladder was full and had not wet herself.

CASE 3.—Girl, aged 4 years, suffering from orthopnoea. Heart enlarged to right and 1 in. outside left nipple line. Double thrill over præcordia, pulse regular, weak and of low tension. Heart-sounds were obscure at first; later a double murmur, *crescendo* in character, was heard definitely over the entire chest, transmitted toward the axilla and scapula. The temperature curve was septic in type, reaching 100° F. in the afternoon and was unaffected by sodium salicylate, $7\frac{1}{2}$ gr. every three hours, or by quinine and urea hydrochloride in 3-gr. doses three times a day.

Cultures on blood-agar plates from the rhinopharynx contributed three isolated cultures: Gram-negative diplococcus, a diphtheroid, and *Micrococcus catarrhalis*. When incubated in the child's blood the first grew up well, the last irregularly and the other only in undiluted culture. A vaccine was made of the Gram-negative diplococcus. Two doses of twenty-five million were administered six days apart, a week later fifty million were given and ten days later a hundred million. There was never a reaction, and the temperature remained practically normal after the second dose. In this case the vaccine treatment should have been continued longer, but Dr. Solis-Cohen went off service in the hospital where this little girl was and his successor discontinued the vaccines, which resulted in a subsequent rise in temperature.

CASE 4.—Girl, aged 10 years. Admitted to hospital for recurrent nose-bleed. Examination showed a markedly hypertrophied heart with a loud mitral systolic murmur blowing in character and with probably a presystolic element attached; both lungs were infiltrated with enlarged peribronchial glands.

X-rays verified these findings. She had had pneumonia with empyema seven years previously. Dr. Solis-Cohen was of the opinion that the same organism that participated in the pneumonia was responsible for the empyema, and was probably responsible for the cardiac complications as well. Cultures from the sputum showed only the commonly found organisms, while the blood culture was sterile. Smears from the rhinopharynx cultured and grown in the patient's blood showed a pure culture of *Streptococcus hæmolyticus*. He deemed it unwise to administer a vaccine of this organism and instead injected antistreptococcic serum. One dose of 10 c.c., two doses of 20 c.c. and four doses of 40 c.c. were given at intervals of from one to four days. After the third dose the temperature dropped, reaching normal in two days. It rose again and did not begin to fall again until two days after the last dose. She gained $2\frac{3}{4}$ lb. in twelve days. After a

little over three months she was discharged from the hospital, at which time she was walking about all day.

The Use of Lactic-acid Milk in the Feeding of Under-nourished Infants.—Dr. ELEANOR C. JONES, who read this paper, stated that the only remedy for such infants is food which must be prepared in such form that it can be digested and absorbed by an already weakened and atrophied intestinal tract. As the caloric needs of such infants are greatly in excess of that of normal babies, the food must be easily assimilable, highly nourishing and concentrated. To meet these indications she followed Dr. Marriott's method of using whole lactic-acid milk with the addition of corn syrup in high percentages, as he has pointed out that it has been a matter of common experience that infants suffering from gastro-intestinal disturbances are able to take larger amounts of milk artificially soured by lactic-acid organisms than they can by sweet milk. The observation is especially true as regards the digestibility of the fat in lactic-acid milk.

Dr. Marriott advises beginning the feedings with equal parts of whole lactic-acid milk and buttermilk, then gradually reducing the buttermilk until the infant is taking all pure lactic-acid milk. When it is sure that the infant can digest this undiluted lactic-acid milk, carbohydrates are added in the form of corn syrup (karo), which consists of 33 per cent. dextrins, 20 per cent. maltose, 15 per cent. glucose or dextrose and $3\frac{1}{2}$ per cent. cane-sugar. The advantage of using this mixed carbohydrate food is that it is split up in the digestive tract at varying intervals and does not flood the intestines with simple sugars. Furthermore, dextrins are protective colloids, and probably have a favourable action in the digestibility of the proteins in the same way as does starch.

Dr. Jones used this method on four very much under-nourished babies, and obtained most excellent results. She calculated that karo by volume contained 110 per cent. of carbohydrates with a caloric value of 110 calories per ounce. In her first series of four babies whom she fed on lactic-acid milk she began with equal parts whole lactic-acid milk and buttermilk, and gradually reduced the buttermilk, but also added about 3 per cent. corn syrup. It made the food more palatable. Three of the four babies were gradually increased till they were taking nearly pure lactic-acid milk and 10 to 12 per cent. corn syrup. No vomiting or diarrhoea occurred in any of these cases, while frequent examination of the stools showed no fatty acids and very little soaps. On this feeding the characteristic stools were smooth and salve-like, light grey in colour, numbering one to three per day. The fourth infant was unable to take more than $2\frac{1}{4}$ per cent. fat; the stools invariably showed undigested fat if this amount were exceeded. These infants were fed every four hours—six feedings per day. None of them developed any symptoms of intoxication despite the high content of the food, and again showed the high tolerance of atrophic infants for carbohydrates. The daily caloric value of food reached 80 to 100 calories per pound of body-weight. The weight gain was very satisfactory; every infant, after a few days of adjustment, gained steadily.

Dr. Jones reported another series of atrophic infants fed on lactic-acid milk with equally good results. These babies, from being horrible, shrivelled and distressed-looking specimens, grew to be healthy-looking babies, their flesh became firm and elastic, and their spirits brightened with their general appearance of well-being.

She concluded from her study of these cases that whole lactic-acid milk

with corn syrup is especially indicated in young atrophic infants if neither vomiting nor any organic disease are present, as it supplies a concentrated food of high caloric value in a form that can be assimilated by the weakened digestive organs of the under-nourished infants.

The Frequency of Pyelitis in its Relationship to the Nosology of So-called Obscure Temperatures in Infants.—Dr. HARRY LOWENBURG pointed out in this paper the great difficulty in determining the cause of fever in infants and young children. In such little patients the physician's ability to determine the cause of temperature of more or less indefinite duration, particularly when it is of so-called obscure origin, depends upon the ability and desire to conduct a thorough and painstaking physical examination, and by the limitations of laboratory investigations and the use made of these. After enumerating the common causes of so-called obscure fever in infants and young children, he emphasised the importance of pyelitis—a disease common enough in infancy, but frequently overlooked by the general practitioner on account of omitting the important procedure of examining the baby's urine.

Symptoms.—Constitutional or other symptoms, aside from irregular fever of more or less indefinite duration, may be absent. An examination of the urine reveals pus, and the riddle is solved. The number of leucocytes or pus-corpuscles to the field necessary to a diagnosis may cause some confusion. In the absence of vaginitis, eight, ten or more corpuscles should at least create a strong suspicion. Still places the number as low as six or less to the field. This alone to his mind, without fever or albumin, would hardly, in a female infant, be convincing evidence. Neither a few corpuscles alone nor albumin alone occurring in traces would make certain the diagnosis, but both together presenting in an acid urine obtained by catheter or after vulvar cleansing, especially if the colon bacillus is present, offer convincing evidence, in the presence of fever not due to other demonstrable cause, of the incidence of this disease. Pyelitis occurs without fever. Here the history of a previous acute illness not far removed from the present, and probably not diagnosed, is usually available and highly suggestive, especially with pus in the urine at the present time. Relapses are quite common under these circumstances. Frequently in infectious diseases pus appears in the urine with albumin from toxic irritation of the kidneys, but if no other disease be demonstrable the urinary findings are sufficient to make the diagnosis of pyelitis.

Constitutional symptoms may be intense at times—convulsions, rigors, etc., abrupt high fever, cyanosis, vomiting, diarrhoea—the diagnosis being made by exclusion and on the findings in the urine.

Urinary symptoms.—Aside from the classical ones already given, there may be tenderness along the ureters; painful and frequent micturition are rarely present unless cystitis accompanies the pyelitis. Cystoscopy and ureteral catheterisation offer a valuable means of studying and treating chronic pyelitis, which does not yield to potassium citrate, hexamethylenamine or vaccine. Dr. Lowenburg said that most of his patients were female, and that in all of them the colon bacillus was found in the urine. He described thoroughly the technique of obtaining specimens of urine for routine study and for bacteriological study.

Treatment.—Potassium citrate or other alkalisng agent must be administered till the urine becomes free from pus and *B. coli*. The effect of the citrate is practically specific. Large doses may be necessary. The

urine must be kept alkaline at all times till it is free from pus and bacilli, when the dosage of citrate may be gradually decreased and finally stopped. It may be necessary to give as much as 20 gr. every two hours, day and night, for weeks. This has been done without any apparent ill-effects on the child. He stated that hexamethylenamine had given him no encouraging results, except where it apparently temporarily cleansed the urine in a case of chronic pyelitis without fever. Hexamethylenamine must not be administered during the use of alkalis. There are cases which will not yield permanently to this drug or to the alkalis; there is always a relapse when the drugs are discontinued. In these cases the organisms probably remain dormant during the alkalisation of the urine, later resist the alkaline environment and become clinically active. They are, as it were, alkaline-fast. Autogenous vaccines should be tried in these cases in large doses and over long periods of time.

Dr. Lowenburg reported many cases of pyelitis, illustrating the finding of the cause of the so-called obscure fever, with their treatment and the lessons learned from their study.

Abstracts from Current Literature.

Acute Infectious Diseases.

Bacteriological researches on the influenza epidemic 1918-20 (*'La Pediatria,'* 1920, xxviii, p. 849).—**M. Sindoni** studied agglutination with Pfeiffer's bacillus, and found that in 91 per cent. of cured cases agglutination took place with dilutions between the limits of 1 to 25 and 1 to 50. In convalescents the percentage rose to 100 per cent. in dilutions of 1 to 25 to 1 to 100. In the sick, on the other hand, the percentage sank to 43 per cent. with the same dilutions. She also found that in the cured deviation of the complement was always negative, while it was positive in 14 per cent. of convalescents and 37 per cent. of the sick. VINCENT DICKINSON.

Researches on blood changes in influenza (*'La Pediatria,'* 1920, xxviii, p. 625).—**G. Milio**, during the epidemic at Palermo in 1918, undertook some experiments to ascertain the hæmoleucocytic formula, the viscosity of the blood and the time of coagulation. From an analysis of twenty cases he found that in children suffering from this complaint there was a slight diminution of hæmoglobin and red cells. In simple cases the leucocytes were normal in 25 per cent., and there was leucopenia with diminution of the polynuclears and increase of lymphocytes in 75 per cent. In complicated cases there was leucocytosis and polynucleosis in 70 per cent. The viscosity of the blood showed no change in all the cases examined and the coagulability was on an average 2.58, which may be considered normal. VINCENT DICKINSON.

Pandemic influenza in children (*"Med. Klin.,"* 1920, xvi, p. 1319).—**Hamburger** and **Bálint** maintain that pandemic influenza in children is a formidable disease. In addition to cases of broncho-pneumonia, in which the areas tend to become confluent, pleurisy is a frequent complication. A large number of the severe cases show toxic symptoms. The disease appeared

to be worst in rickety children, and children with severe rickets invariably succumbed. All possible methods of treatment were employed without much success.

J. D. ROLLESTON.

Cats and human diphtheria (*Journ. of Hyg.*, 1920, xviii, p. 448).—**W. G. Savage** discusses the evidence associating cats with human diphtheria, and records the results of his own investigations, which were conducted as follows: (1) Bacteriological examination of the nose and throat of healthy cats not associated with any cases of human diphtheria; (2) bacteriological and pathological examination of cats associated with human diphtheria; (3) experimental investigations of kittens. Examination of the nose and throat of eight healthy cats and twelve kittens showed that none of the twelve kittens had any organisms resembling diphtheria bacilli, while in five of the eight cats organisms more or less closely resembling Klebs-Loeffler bacilli were found, but with one possible exception were definitely not diphtheria bacilli. Examination of five cats associated with human cases showed no anatomical lesions resembling diphtheria and no definite diphtheria bacilli could be isolated. Experiments on nineteen young kittens were exceptionally uniform and concordant, it being found impossible to infect them by throat swabbing, though very massive doses were invariably used. Savage concludes that the common and widely accepted view that cats can suffer from diphtheria is entirely unfounded. He considers that the cases regarded as such are based upon insufficient examination and differentiation of the bacilli, due to a failure to realise that a large proportion of healthy normal cats contain in their throats bacilli which closely resemble true diphtheria bacilli.

J. D. ROLLESTON.

Tonsillectomy as a means of treatment in diphtheria carriers (*Med. Journ. Austral.*, 1920, i, p. 361).—**G. Brown** finds this operation of value in removing infection from diphtheria and that the tonsils are frequently the site of the growth of the organisms.

F. R. B. ATKINSON.

Malignant hæmorrhagic scarlet fever (*Riv. di Clin. Ped.*, 1920, xviii, p. 405).—**G. Tron** states that the rarity of malignant hæmorrhagic scarlet fever is shown by the fact that during the last fifteen years, in which 5000 cases of scarlet fever have been admitted to the Milan Hospital for Contagious Diseases, only four cases of this type have been seen. The first occurred in a boy, aged 15 years, who, on the sixteenth day of disease, developed hæmaturia and gingival hæmorrhages. He was treated by normal horse-serum, and recovery took place after a long period of anæmia. The other three cases, which were all fatal, occurred in women, aged 19, 22 and 33 respectively, during the first week of the disease, and were characterised by the presence of petechiæ, hæmaturia and metrorrhagia. The necropsies showed subpleural, subepicardial and subperitoneal hæmorrhages, as well as hæmorrhages in the submucous coat of the intestine and uterus.

J. D. ROLLESTON.

Measles experimentally produced (*Arch. of Ped.*, 1921, xxxviii, p. 90).—**F. G. Blake** reports his experiments on the transmission of measles to monkeys at the Hospital of the Rockefeller Institute for Medical Research. The monkeys were inoculated with the naso-pharyngeal washings collected by saline irrigation of the naso-pharynx, 5 to 10 c.c. of the

nasal washings being injected intratracheally. Of twelve monkeys inoculated ten developed characteristic symptoms of measles after an incubation period of six to ten days. The onset was marked by drowsiness, loss of appetite and leucopenia. The conjunctivæ became inflamed and typical Koplik's spots appeared. One to five days after the onset a red maculo-papular rash appeared, usually coming out first on the face and then spreading to the chest, abdomen and inner side of the thighs. It was rarely as thick or wide-spread as measles in the human subject, but went through the regressive changes characteristic of measles, ending with desquamation. The temperature might rise to 105° to 106° F., or there might be little or no fever, or the fever might be present only in the prodromal stage. The degree of leucopenia was sometimes as low as 4000 over a period of several days. The normal leucocyte count in the monkey averaged somewhat higher than in the human being, the normal fluctuation being from 15,000 to 25,000. In only one respect did the reaction in monkeys differ from human measles, viz. in the absence of any evidence of rhinitis or bronchitis. The possibility of the reaction being due to some filterable toxin rather than to the living virus of measles was excluded by the successful transmission from monkey to monkey. Tissue emulsions from one of the monkeys transmitted the disease to two other monkeys, one of which was killed shortly after the appearance of the exanthem, and the disease transmitted to two other monkeys and so on. With the continuous passage the exanthem became more marked and persisted for a longer period. The development of immunity was also investigated. Six monkeys which had had an attack of the experimental disease were reinoculated at periods varying from 12 to 254 days after recovery from the experimental disease, in four cases intravenously and in two intratracheally, and none of them showed any evidence of infection. Lastly, histological examination of the lesions in the skin and mucous membrane showed that they were essentially the same as those of measles in man.

J. D. ROLLESTON.

Measles in a newborn child (*Deutsch. med. Woch.*, 1921, XLVII, p. 271).—E. Schulze reports a case of measles in a breast-fed infant whose mother had had an eruption accompanied by catarrh fourteen days before its birth. On the fourth day of life the morning temperature was 100·4° F., and the evening temperature 101·2°. Apart from rhinitis nothing else abnormal was noted. On the fifth day the temperature in the morning was 102° and in the evening 101·6°, and the rhinitis was more marked. On the sixth day the whole body was covered with a typical measles eruption. There was slight conjunctivitis, but no Koplik's spots. The temperature on the four days following the appearance of the eruption ranged between 100·4° and 102·2° F. Five days after the onset the temperature became normal. Mairinger reported a similar case in which the mother's eruption was present at childbirth. Although the infant was isolated, a typical measles eruption appeared fourteen days after birth.

J. D. ROLLESTON.

Anomalous measles (*Arch. Lat.-Amer. de Ped.*, 1920, XIV, p. 519).—J. Bonaba records two cases of measles remarkable for the unusual length of the period of invasion. The first case, a boy, aged 7 years, was taken ill with rhino-pharyngitis, bronchitis and fever. A prodromal rash appeared on the sixth day. The general condition then became serious, with a

temperature of 104° F., prostration, delirium and absolute anorexia. On the tenth day the characteristic eruption of measles appeared, and the subsequent course of the disease was uneventful. The second case, a boy, aged 9 years, brother of the first, was taken ill with fever and coryza, which lasted for fourteen days, at the end of which time the characteristic eruption appeared, and the disease ran a favourable and uncomplicated course. Coexistent infections such as tonsillitis, otitis or broncho-pneumonia could be excluded.

J. D. ROLLESTON.

Incomplete measles (*Arch. Lat.-Amer. de Ped.*, 1920, xiv, p. 417).—**M. A. Ugón** records three cases of measles in infants aged from 1 to 3 months infected by their nurses which were remarkable for the following reasons: (1) The appearance of measles in breast-fed infants a few months old who have a certain immunity to the disease even in an infected environment. (2) The paucity of symptoms and extremely mild character of the disease in spite of the severity of the nurse's attack. In three cases there was slight rhino-pharyngitis with conjunctivitis in two cases. Only one had an eruption, which lasted for a few hours. None had a buccal enanthem. (3) The simultaneous onset in the three cases eight days after the nurse's eruption.

J. D. ROLLESTON.

Anomalous and complicated varicellá (*Arch. de méd. des enf.*, 1920, xxiii, p. 714).—**I. Iankoff** records two cases of varicella in children, aged 23 months and 2½ years respectively, in whom the lesions were umbilicated and the eruption confluent. In one case the attack was complicated by acute infective colitis, and in the other by profuse choleric form diarrhoea. Both cases recovered. The elder brother of one of the patients had so mild an attack that it almost escaped notice. The elder sister, on the other hand, had a febrile attack of a week's duration without any eruption apart from a solitary bulla at the base of the uvula. Iankoff comes to the following conclusions: (1) Confluence of the eruption in varicella should be regarded as rare, but not impossible. (2) The vesicles in varicella fairly often undergo umbilication, so that this phenomenon should not exclude varicella. (3) Umbilication is not necessarily confined to the confluent form of varicella. (4) In extremely rare cases varicella may assume an abortive form and escape notice. (5) In exceptional cases the complications of varicella may affect the alimentary canal.

J. D. ROLLESTON.

A new site for vaccination (*New York Med. Journ.*, 1920, cxii, p. 1035).—**I. H. Goldberger** during the last seven years, in the course of which he has vaccinated over 500 children, has used the inner and back side of the arm for vaccination for the following reasons: (1) It leaves no visible scar; (2) it does not prevent children having their daily bath while vaccination is going through its various stages; (3) there is little or no exposure to infection from outside sources; (4) it minimises sources of trauma; (5) there are no infiltrations, extensive indurations, sloughing or extensive scarring. The method is carried out as follows: After the arm has been cleansed the forearm is flexed at right angles and the vaccine is applied below a line midway between the internal condyle of the humerus and the anterior axillary line. The virus is allowed to dry thoroughly before placing over the abrasions a sterile pad of gauze, which is held in place by strips of adhesive plaster.

J. D. ROLLESTON.

Meningeal syndrome at the onset of smallpox ('*Rev. Españ. de med. y cir.*' 1920, III, p. 110).—**M. Puig** records two cases of smallpox in children, aged 2 and 5 years respectively, which began with symptoms resembling meningitis (convulsive attacks, nuchal rigidity, Kernig's sign, mydriasis and photophobia). On lumbar puncture in one case 85 c.c. of clear non-albuminous fluid were withdrawn under pressure. These phenomena indicated a serous meningitis, possibly caused by the virus of smallpox in a specially predisposed subject, one of the patients having had brothers or sisters who had died with symptoms of meningitis.

J. D. ROLLESTON.

The ætiology of whooping-cough ('*La Pediatría*,' 1920, XXVIII, p. 113).—**O. Cozzolino** combats the view of A. Czerny, that this disease is a local catarrh of the air-passages caused by germs of different kinds, the characteristic symptoms being due to a constitutional tendency to hereditary neuropathy, and that it is not due to any specific infection. This theory has received further support from A. Niemann ('*Jahrb. f. Kinderheilk.*,' 1919, xc, p. 77), from his experience in the Berlin-Halensee asylum for infants. The author affirms that in this theory there is no practical or scientific substratum, and that it also tends to under-rate the important researches of Bordet and Gengou, and, moreover, tends to lead the medical public along the wrong and perilous road of an absolute prophylactic nihilism by destroying the solid basis of the conception of a living and specific contagium.

VINCENT DICKINSON.

The influence of sex on the frequency of whooping-cough ('*Bull. et mém. soc. méd. des hôp. de Paris*,' 1920, XLIV, p. 324).—**E. Apert and Cambéssèdes** state that both in France and other countries whooping-cough is much more prevalent among females than males. During 1919 in the whooping-cough pavilion at the Hôpital des Enfants Malades in Paris 150 girls were admitted as compared with 88 boys. The statistics of the City of Paris from 1894-1903 also show a higher incidence and mortality among girls, though not so pronounced as that noted by the writers. The predilection of whooping-cough for the female sex is all the more remarkable as it is not found in any of the other infectious diseases of childhood, such as measles, scarlet fever, mumps and diphtheria, which are all more frequent and severe in the male sex.

J. D. ROLLESTON.

An experimental and clinical therapeutic study of whooping-cough ('*Bull. Johns Hopkins Hosp.*,' 1920, XXXI, p. 236).—**D. I. Macht**, from its use in 115 cases, the vast majority of which were in children, aged from a few weeks to 14 years, has found that the use of benzyl benzoate solution either alone or preferably with small doses of benzaldehyde exerted a palliative, though not curative, effect on the violence and number of the whooping-cough paroxysms. Five to forty drops of a 20 per cent. solution of benzyl benzoate were given three or four times a day and oftener according to the age of the patient and severity of the disease. The beneficial effects of the drug were attributed (1) to its antispasmodic effect on bronchial spasm, (2) to its sedative effect on skeletal muscle, (3) to its anæsthetic effect on the larynx, (4) to its expectorant action, (5) to its antiseptic action.

J. D. ROLLESTON.

Sudden death in whooping-cough ('*La Pediatría*,' 1920, XXVIII, p. 305).—**I. Nasso** records a case of whooping-cough in a child, aged

14 months, in whom the paroxysms were accompanied or sometimes replaced by attacks of spasmodic sneezing. Death took place one morning during an unusually violent attack, being probably due to spasm of the glottis and arrest of the heart associated with spasmophilia. Nasso thinks that it would be advisable to submit all cases of whooping-cough in infants, even if there are no signs of spasmophilia, to anti-spasmodic treatment. In severe cases subcutaneous injections of magnesium sulphate should be given.

J. D. ROLLESTON.

The duct sign in mumps (*Amer. Journ. Dis. Child.*, 1920, xx, p. 75).—**D. M. Cowie** describes a phenomenon which he found in 96 per cent. of his cases of mumps, and thinks is probably present in all cases of parotid mumps at some time in the course of the disease. It consists in a reddened spot measuring 1–2 mm. in diameter, corresponding to the orifice of Steno's duct on the affected side. The duct will usually be found to project beyond the surface of the mucous membrane for 1–3 mm. The duct is œdematous and usually pale in contrast with the central red spot, but is sometimes slightly injected. No changes were seen in the ducts in submaxillary mumps or parotid mumps in which the submaxillary glands were involved. Cowie has not determined whether the duct sign is pathognomonic of specific parotitis or is present in other acute inflammations of the parotid gland.

J. D. ROLLESTON.

Typhoid fever of long duration (*La Pediatria*, 1920, xxviii, p. 1134).—**G. di Giorgio** describes three cases which tend to show that typhoid may be prolonged even for many months without causing noticeable disturbance of the various functions of the organism. From a certain point of view this special behaviour of the infection may approximate to the so-called ambulatory typhoid. Diagnosis in such cases can only be made by laboratory methods. Vaccine therapy is just as effective as in acute cases.

VINCENT DICKINSON.

Acute cholecystitis in children as a complication of typhoid fever (*Bull. Johns Hopkins Hosp.*, 1920, xxxi, p. 7).—**M. R. Reid** and **J. C. Montgomery**, of the Surgical and Pediatric Clinics of the Johns Hopkins Hospital, have collected eighteen cases of typhoid fever in children who either died or were operated on for acute cholecystitis. Eight cases which occurred prior to 1893 died without operation. Since then ten cases which have been treated surgically have been reported with only one death. In recent years cultures of the gall-bladder have usually been made at the time of the operation. When there was a pure culture of the typhoid bacillus the leucocyte count was relatively low—about 10,000. The writers emphasise the importance of differentiating between gall-bladder complications which do and those which do not require operation. Slight pain and tenderness in the region of the gall-bladder with a slight degree of spasticity of the rectus are not uncommon in typhoid fever, and the vast majority of such patients get well without operation.

J. D. ROLLESTON.

Congenital malaria (*Arch. de méd. des enf.*, 1920, xxiii, p. 606).—**A. Cuadra** records the case of a woman with a history of malaria, who gave birth to a child on January 19. The labour was difficult, and forceps were applied. On January 21 the mother had a rigor and the temperature rose to 104° F. The child's temperature was also found to be 104° F.,

and microscopical examination of the mother's and infant's blood showed the presence of *Plasmodium vivax* in each case. The mother was treated by injections of quinine and the infant by euquinine by mouth, and by January 28 the temperature became finally normal in both mother and child.

J. D. ROLLESTON.

Malaria among children in Palestine ('*Arch. of Ped.*,' 1920, xxxvii, p. 494).—**S. Rabinoff**, who records his experiences of malaria among children in Palestine in 1918, states that the outstanding features of malaria in children are as follows: The chill is less frequently an initial symptom than in adults. On the other hand there is a greater tendency to convulsions and other nervous manifestations, such as restlessness, twitchings, fretfulness or drowsiness. In children under 2 years there are very frequently gastro-intestinal symptoms, such as vomiting, constipation, diarrhoea, and occasionally bloody stools. The interval between the attacks is usually marked by a striking return to a normal appearance. Lastly, there is a much greater tendency to irregularity of temperature than in adults. Fifty-nine of Rabinoff's patients were under 1 year, and of these 7 were under 1 month. The youngest patient was a few hours old and had a temperature of 105° F. The mother had suffered for several years from chronic malaria, with acute exacerbation from time to time. Examination of the infant's blood showed tertian parasites. Quinine in 1-gr. doses every 2 hours was ordered. There was only a slight rise of temperature on the third day and no recurrence took place.

J. D. ROLLESTON.

An important factor in the cure of malaria ('*Journ. Amer. Med. Assoc.*,' 1920, LXXV, p. 1003).—**L. R. Debuys** states that the presence of carriers in a household is the probable explanation of apparently unsuccessful treatment in spite of the proper use of quinine, a supposed relapse being really a re-infection. He records the case of a boy, aged 6 years, brought to hospital with the history of having had fever for two months. Examination of the blood showed that he was infected with the æstivo-autumnal type of parasite. He was given quinine treatment and discharged as cured, but some days later returned with a fresh attack. The other members of the household—two sisters and a brother—were then examined, and their blood also showed the æstivo-autumnal type, though with the exception of an enlarged spleen, they had no evidence of disease. They were all treated and their blood sterilised, and no further attacks took place.

J. D. ROLLESTON.

Mediterranean fever in children ('*La Pediatria*,' 1920, xxviii, pp. 1 and 57).—**G. di Cristina** and **S. Maggiore** distinguish nine types as occurring in children, viz. hyperpyretic, undulant, splenomegalic, dyscrasic, biliary, adynamic, rheumatoid, nervous and renal, each of which is lucidly and fully described, and four types associated with Leishmaniasis, enteric, dysentery and tuberculosis respectively. They insist on vaccine therapy as the only effectual method of cure and describe three types of vaccine: (1) those prepared with bacilli acted on by heat or chemicals; (2) those with attenuated or living organisms; (3) those prepared with products of disintegration of the bacilli. In conjunction with Caronia the authors have proved the advantages of the last type, which are—the absence of violent reaction, prompt absorption and effect, and small dosage.

VINCENT DICKINSON,

The iodo-reaction in urine (*'La Pediatria,'* 1920, xxviii, p. 182).—**G. Genoese** tabulates eighty cases of typhoid, tubercle and other diseases. According to Petzetakis, who described it in 1915, the reaction never occurred in the urine of normal individuals, was always negative in closed pulmonary tubercle and constant in cases of typhoid in which Ehrlich's diazo-reaction and Widal's serum reaction were present. The author, however, found that it had no clinical value, that it occurred in healthy individuals, might be absent in acute and present in chronic infections. In tuberculosis it was absent in serious cases and present in those of moderate gravity. Also in typhoid it occurred neither early nor constantly, and could not take the place of the diazo-reaction or constitute any valuable help in diagnosis.

VINCENT DICKINSON.

Nitrogen output in infectious diseases (*'Gaz. des Hôp.,'* 1920, xciii, p. 937).—**J. Manet** finds that in measles the urea may rise up to the appearance of the rash and then fall to normal when desquamation begins, or it may be normal at the commencement and rise at the end of the pyrexia during convalescence. Achard and Fenillée, who have found a rise of urea during convalescence from some infectious diseases, attribute it to retention of nitrogen for repair of albuminous tissues. In measles complicated by bronchitis and broncho-pneumonia the output of urea is lowered to the end of the febrile period. The urea of the cerebro-spinal fluid can remain raised or even increase at the termination of measles due to some complication. Nobécourt and Maillet have described nitrogenous excess in infants in a form of meningitis which may accompany violent gastro-intestinal troubles, also in cholera nostras the same has been found. In smallpox the output of urea is raised at the beginning of the suppuration, to fall to normal with the temperature; in severe cases the urea continually rises. In typhoid fever the urea rises according to the severity of the disease, and the larger outputs are often accompanied by convulsions or other nervous crises. The writer finds that salts of ammonia will increase the output of urea, so the treatment must be considered in weighing the result.

J. PORTER PARKINSON.

Syphilis.

A case of congenital syphilis (*'Dublin Journ. Med. Science,'* 1911, ii, p. 229).—**Sir J. Moore**.—A girl, aged 12 years, was admitted to hospital with a history of fits. She was pale, looked delicate, was unable to speak, and examination revealed complete loss of motor power to the left arm and leg. The knee-jerks were increased more in the left than in the right limb, and ankle clonus was also present in a marked degree. Temperature was subnormal; tongue coated; front teeth were notched and bridge of nose was markedly saddle-shaped. The Wassermann reaction was markedly positive. The child's mother was syphilitic; the father died from general paralysis. Under treatment with Donovan's solution very rapid improvement took place. The child subsequently had an attack of herpes zoster.

J. ALLAN.

The significance of syphilis in prenatal care and in the causation of foetal death (*'New York State Journ. Med.,'* 1920, xx, p. 252).—**J. W. Williams** emphasises the importance of the recognition and treatment of

syphilis early in pregnancy. This constitutes an important and fruitful field for a radical reduction in foetal mortality. Syphilis represents only one of the causes of foetal death, but it appears to offer the most promising field for immediate results.

J. ALLAN.

The uvulo-palatal sign of congenital syphilis (*Arch. ital. di otol., rinol. e laryngol.*, 1920, xxxi, p. 452).—A. Bergamini discusses the sign described by Tanturri (*vide BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1919, xvi, p. 120), which consists in a characteristic notching of the border of the soft palate in the neighbourhood of the junction of the anterior pillar of the fauces with the base of the uvula. The lesion is said to be bilateral and quite obvious. The surrounding mucosa is intact, and the motility and tactile and thermal sensibility of the soft palate are unimpaired. Bergamini investigated the sign in 100 cases of congenital syphilis but with an unusually negative result, the free border of the soft palate and especially the uvulo-palatal angle being perfectly normal. The same was to be said of the rest of the oro-pharyngeal mucosa, apart from an intense pallor in some cases obviously due to the wretched state of nutrition of the children. Bergamini, therefore, concludes by saying that while he cannot absolutely affirm or deny that individuals with Tanturri's lesion are the subjects of congenital syphilis, he can assert that the sign is not present in all cases of the disease.

J. D. ROLLESTON.

Von Dungern's reaction in congenital syphilis (*La Pediatria*, 1920, xxviii, p. 1041).—F. Lo Presti-Seminario compared this reaction with the Wassermann reaction in 82 children, of whom 62 were certainly syphilitic and 20 certainly not. The result obtained showed that out of 36 infective children with a positive Wassermann reaction, Von Dungern's test was positive in 5 only, while in 26 with negative Wassermann reaction Von Dungern's reaction was positive in 3. Out of 62 cases of definite hereditary syphilis Von Dungern's reaction was positive only in 8, while in the 20 non-syphilitic cases it was positive in 4 and negative in 16.

VINCENT DICKINSON.

Further observations on the Wassermann reaction in human milk (*La Pediatria*, 1921, xxix, p. 121).—C. L. Rusca finds that in the milk of syphilitic women untreated, or only partially treated, it is possible even at a very advanced stage of prolonged lactation, or after it has ceased, to demonstrate the presence of specific antibodies. The reaction in milk is less sensitive than in the blood, and therefore of inferior diagnostic value. A positive reaction in the milk probably indicates serious and active syphilis. With specific treatment the reaction disappears earlier from the milk than from the blood.

VINCENT DICKINSON.

Congenital heart disease and hereditary syphilis (*La Pediatria*, 1920, xxviii, p. 992).—S. de Stefano found that out of 32 cases, 26 males and 6 females, of ages between one month and two years, abortions and premature births took place in the parents in 16 cases, *i.e.* 50 per cent., definite syphilis in the father in three cases, no hereditary precedent in 11 cases, *i.e.* 34 per cent. In 14 cases Roger's disease was present, in 12 morbus cœruleus associated with dextrocardia in 1 case, in 4 pulmonary stenosis. Splenomegaly was present in 12 cases, enlarged liver in 7, epitrochlear glands in 4, depressed nose with rhinitis in 3, hydrocephalus in 2, cutaneous and mucous syphilitic manifestations in 1, Mongolian patches in

1, hypospadias in 1, polydactylia in 1, situs inversus in 1, while in 9 there were no suspicious manifestations. The Wassermann reaction was performed in 30 cases. In 23 cases, or 72 per cent., a luetic infection could be admitted with certainty.

VINCENT DICKINSON.

Congenital anomalies and inherited syphilis (*'La Pediatria,'* 1921, xxix, p. 59).—**S. de Stefano** examined 272 cases of congenital anomalies and malformations at the Naples University Pædiatric Clinic for the presence of syphilis, the presence of which was determined by the history, the association of other specific symptoms, and the results of the Wassermann reaction performed simultaneously in the parents and children. The cases included 54 of hydrocephalus, in which syphilis was present in 50, 23 of spina bifida, 9 of which were positive, 32 of congenital heart disease, 27 of which were positive, 69 of hypothyroidism, 59 of which were positive, 46 of Mongolian imbecility, 34 of which were positive, and 17 pluriglandular syndromes, of which 15 were positive. De Stefano's cases show the great frequency of congenital syphilis in the ætiology of congenital anomalies and malformations, although it is not the exclusive cause. This is a matter of very great importance, especially from the prophylactic standpoint, because a rational treatment of syphilis in the parents ought to prevent to a certain extent a large number of congenital defects.

J. D. ROLLESTON.

Absence of upper lateral incisors in congenital syphilis (*'Dermat. Woch.,'* 1921, lxxii, p. 113).—**J. Sichel** states that Mandelbaum in 1917 first drew attention to unilateral or bilateral absence of the upper lateral incisors in congenital syphilis. Sichel examined 1200 unselected patients, and in 50 cases, or 4·2 per cent., found an absence of the upper lateral incisors on one or both sides. Only those cases were considered in which loss or extraction could be excluded. Of the 50, 26, or 50·2 per cent., were children of syphilitic parents and gave a positive Wassermann reaction; the other cases were suffering from indifferent diseases. Sichel concludes that though this dental anomaly cannot be regarded as diagnostic of congenital syphilis it is a useful guide, and should prompt a search for further signs of the disease. The phenomenon is attributed to parathyroid insufficiency owing to the great influence which these glands have on ossification.

J. D. ROLLESTON.

Fibrous osteitis and inherited syphilis (*'Bull. et mém. soc. de chir.,'* 1920, xlvi, p. 1485).—**A. Mouchet** has recently observed two cases of fibrous osteitis in which there was no doubt about the presence of inherited syphilis. The first case was a girl, aged 12 years, who had had pain in her right foot from involvement of the astragalus since she was four years old. The pain had improved as the result of treatment, but the anatomical condition had not undergone any change. The other case was in a girl, aged 17 years, who had suffered for some months from pain in the right trochanter. There was slight atrophy of the right lower limb, but the movements of the hip and knee were normal. There was slight tenderness on pressure on the great trochanter without increase in size. X rays showed the rarefaction and polycystic appearance characteristic of fibrous osteitis. Subsequently the girl slipped on the floor and fractured her femur at the site of the fibrous osteitis.

J. D. ROLLESTON.

Parrot's pseudoparalysis ('*La Pédatrie*, 1920, xxviii, p. 161).—**S. de Stefano** tabulates 35 cases. Of these 18 were males, 17 females. The onset in the majority of them was about the second half of the second month. In 20 there was more or less evidence of parental syphilis, in 8 probable evidence, and in the remaining 7, *i. e.* 20 per cent., no evidence or suspicion of it. There was a large prevalence of localisation in the upper extremities; a hemiplegic form was very rare. Rhinitis, splenomegaly and condylomata were present in the syphilitic cases, and the Wassermann and Noguchi tests gave positive results in most of them. The prognosis was doubtful, as many of the cases were lost sight of. **VINCENT DICKINSON.**

Articular effusion due to congenital syphilis ('*Glasg. Med. Journ.*, 1920, II, p. 306).—**J. S. Buchanan** reports a case in a boy, aged 11 years, who came under observation because of swelling of knees and a disinclination to walk. Considerable fluid was present in both knees. No pain or tenderness; no restriction of movement. It was obviously syphilitic, as he showed keratitis, fissures, pegged teeth, etc. Boy's blood gave a positive Wassermann, and the father's was positive also. **W. Galbraith** ('*Glasg. Med. Journ.*, 1920, II, p. 307) records a case in a boy, aged 13 years, who suffered from bilateral hydrops of the knees. He complained only of stiffness in the knee-joints. Apart from very slight "sabre-blade" tibiae there was no evidence of congenital syphilis. Wassermann reaction positive. Father's Wassermann reaction positive; mother's stated to be "suspicious." **J. ALLAN.**

Late hepatic congenital syphilis with nephritis ('*La Pédatrie*, 1920, xxviii, p. 1142).—**R. Spano** reports the case of a boy, aged 9 years, with a positive Wassermann reaction and albuminuria (6-7 per mille). The diagnosis was made of chronic nephritis secondary to influenza, and in view of the increasing size of the abdomen paracentesis was performed, 4000 c.c. slightly turbid yellow fluid being removed, containing 2 per mille albumin and a few leucocytes. The fluid reaccumulated rapidly, and after a second paracentesis the liver was found enlarged and bossy and the spleen enlarged. Mercurial inunctions were given, during which the albumin increased to 16 per mille, with diminution in the quantity of urine, which showed a sediment rich in pathological renal elements. Subsequently a marked improvement took place, the ascites and enlargement of the liver and spleen diminished, but signs of renal lesion persisted. The author considers the case one of late hepatic cirrhosis with chronic interstitial syphilitic nephritis. **VINCENT DICKINSON.**

The evolution of acute nephritis in hereditary syphilis ('*Gaz. des Hôp.*, 1920, xciii, p. 1016).—**J. Queslier** records the results of 101 cases of hereditary syphilis. In 67 autopsies of infants under 2 years there were 29 cases of pure interstitial nephritis, 10 mixed and 7 parenchymatous. In 18 cases between 2 and 23 years there were 11 sclerotic kidneys and 7 mixed varieties. The gross appearances may seem normal, but the microscope reveals sclerosis, either general or in patches. The arterioles are often partly or completely obliterated not only in the kidneys, but also in the liver, lungs and spleen. Atheroma of the great vessels may also be found in the aorta or cerebral vessels in children of 4 to 6 years old. Symptoms have either been absent, or been those of acute parenchymatous nephritis; the child has most often succumbed to specific lesions of the

liver or lungs, or to some acute infection, no symptom drawing attention to the state of the kidney. Sometimes there is œdema and albuminuria with blood and cellular casts in the urine. In children over 2 years the cases are more rare, and the condition is often latent, and terminated by uræmic seizures or gastro-intestinal troubles. Œdema is rare; there may be cardiac hypertrophy, high blood-tension, atheroma of the larger vessels. These children bear toxic infections badly, and an acute nephritis may easily be set up and prove fatal. The writer points out that hereditary syphilis leaves the kidney in a state of weakness, so that a slight infection provokes renal complication and renders its cure more difficult.

J. PORTER PARKINSON.

Intestinal hæmorrhage of syphilitic origin in an infant aged 2 months (*Le Nourrisson*, 1921, ix, p. 104).—H. Lemaire, G. Blechmann and R. Turquetty record a fatal case in a male infant who had vomited almost all its feeds since birth. The day before death several hæmorrhagic stools were passed. The Wassermann reaction was strongly positive and the tuberculin cuti-reaction negative. At the necropsy multiple superficial ulcers were found in the ileum and jejunum and patches of suffusion of blood on both surfaces of the intestine, with slight hyperplasia of the intestinal wall in this position. None of these lesions was situated on a Peyer's patch, and there was no hypertrophy of the follicles. Histological examination showed a hæmorrhagic necrosis due to capillary thrombosis. The case differs only in the age of the patient from the cases of intestinal hæmorrhage occurring in newborn syphilitic infants, of which several cases have been recorded.

J. D. ROLLESTON.

Case of syphilitic meningitis in a tuberculous subject (*La Pediatria*, 1920, xxviii, p. 1138).—M. Mallardi describes the case of a girl, aged 7 years, who had continued fever and symptoms of meningitis. Spleen just palpable. Areas of dulness and feeble air entry in thorax. Wassermann reaction intensely positive. Von Pirquet reaction strongly positive. Lumbar puncture drew off 100 c.c. of hæmorrhagic liquid under high pressure with normal albumin content. No thread formation and nothing noteworthy on microscopical examination. A second lumbar puncture twelve days later drew off 30 c.c. clear fluid with thread formation; increase of lymphocytes, but no tubercle bacilli. Intravenous injections of neosalvarsan resulted in complete cure.

VINCENT DICKINSON.

Syphilis and lactation (*Arch. Lat.-Amer. de Ped.*, 1920, xiv, p. 241).—M. A. Ugón states that of 1032 wet nurses that have been employed in Prof. Morquio's service for foundlings at Montevideo only 4 have been contaminated by heredo-syphilitic infants. He records the histories of 3 cases, in each of which there were multiple mammary characters—2 in the first case, 9 in the second, and 12 in the third. The chancres appeared successively with a few days' interval between each. In one case the nurse subsequently infected another child, who in turn infected another nurse. The site of election of the chancre is generally the base of the nipple; less frequently the chancre is situated on the nipple itself or on the areola.

J. D. ROLLESTON.

Treatment of syphilis in infancy and childhood (*Brit. Med. Journ.*, 1920, ii, pp. 197, 3110).—L. Findlay quotes Williams, of Baltimore,

who states that syphilis causes 20 out of every 1000 pregnancies to terminate in stillbirth. In Scotland 4000 persons die annually from syphilis, and 75 per cent. of these deaths occur in children and infants under 5. Mercury should be combined with salvarsan, for with mercury alone 71 per cent. of the cases under 3 months of age died, whereas in cases treated with mercury combined with salvarsan the mortality was only 25 per cent. Mercury should always be given in the form of ointment. Intravenous injections into the veins of the scalp of concentrated solutions of 0.05 to 0.1 grm. in 3 or 4 c.c. of distilled water or saline are recommended, the child being rolled in a blanket, the head tightly held by an assistant, who at the same time presses on the chest and compresses the vein in the scalp. Injection into the longitudinal sinus is not recommended, as irritation of the cerebral convolutions may ensue and meningitis. For children over two the external jugular or the elbow veins should be tried and a general anæsthetic given. A positive was converted into a negative Wassermann reaction in 100 per cent. of the cases receiving 11 injections. The older the child the less easily is a negative reaction obtained. As a prophylactic measure 10 syphilitic pregnant women were treated by salvarsan reinforced by mercury, 4 and 8 injections of the former and in amount varying from 1.2 to 3.6 grm. being given. Not only was the child born healthy, but the women continued to bear healthy non-syphilitic children although no further treatment was adopted. The author concludes by advocating compulsory notification of venereal diseases and alludes to its success in America, and the gross inconsistency of notifying gonorrhœal ophthalmia and omitting blindness due to syphilis.

CHRISTOPHER ROLLESTON.

Reviews.

THE CLINICAL STUDY AND TREATMENT OF SICK CHILDREN. By JOHN THOMSON, M.D., F.R.C.P. Edin. Third edition. Pp. 877. Edinburgh: Oliver & Boyd, 1920. Price 32s. 6d.

It is a good many years since Dr. John Thomson began to give the medical profession the results of his clinical studies of various forms of disease in early life. In this book he has summed up his life's work and observation, and he is apparently still observing and working as earnestly as ever. The book appears to have been a labour of love for him, and it will certainly prove a great boon to students and practitioners. The author has adhered very closely to the lines he has laid down. He has said little about pathology, but has "dealt very fully with clinical methods, clinical symptoms and clinical descriptions of those diseases which are either peculiar to children or show characteristic differences when they occur in early life." Everyone knows how difficult it is to get a useful description of symptoms from children, and in the case of babies it is impossible. Dr. Thomson has concentrated his attention on the outward manifestations of disease, and shows how much can be learned from the observation of the facies, movements, cry, etc. In so far as the information can be conveyed by written descriptions he conveys it. His account of certain diseases, such as various

types of mental deficiency, *Bacillus coli* infection, congenital hypertrophy of the pylorus and congenital laryngeal stridor, deals with subjects he has made peculiarly his own. They almost form a group by themselves which might be called "Thomson's diseases" if we were to try to express what the profession owes him in this connection. The views of other writers have been studied closely, and many references to them are given. The author has even been led to give a long summary of the more recent German work on food disorders, which forms a fine contrast to his own teaching in that it is wordy, theoretical, and probably ephemeral. It is the personal note in Dr. Thomson's book which gives it its chief value, and which will ensure for it a very high place amongst the text-books dealing with children's diseases.

G. A. S.

THE DISEASES OF CHILDREN. By the late Sir JAMES F. GOODHART, Bt. M.D., F.R.C.P. Edited by G. F. STILL, M.D., F.R.C.P. Eleventh edition. London: J. & A. Churchill, 1921. Price 32s. net.

SINCE we reviewed the last edition of this text-book in 1914 there has occurred the lamented death of the original author, Sir James Goodhart. In his preface to the present edition Dr. Still writes a sincere appreciation of his late colleague, and recalls the fact that the book first appeared as much as thirty-five years ago.

Although written by two authors, this book has always in a remarkable way presented a personal view of pædiatrics; all the teaching in it has been applied to the touchstone of personal experience. And herein lies the great value of the book. Some there may be who would object to one statement, others to another, but taking the volume as a whole, we would not have it otherwise.

It is not easy to follow alterations in the text of the new edition owing to the fact that, more words being allotted to each page, the page-enumeration has been altered from that of the last edition. The treatment of diabetes by alimentary rest as applied to children is described, and the method is spoken of as one which "gives results which, at any rate temporarily, are surprisingly good." We cannot find any entry in the index of encephalitis lethargica or "epidemic stupor." However, the little quatrain which keeps its place at the commencement of the volume must, we think, ensure the present edition being as up-to-date as previous ones have always been. Some new illustrations have been added.

R. M.

KOMPENDIUM DER KINDERHEILKUNDE MIT BESONDERER BERÜCKSICHTIGUNG DER SÄUGLINGSKRANKHEITEN. By Prof. ALBERT NIEMANN. Pt. 334. Berlin: S. Karger, 1920. Price 18 marks.

THIS book is dedicated by its author to his teacher, Adalbert Czerny, and throughout the teaching of the Czerny school is closely followed. It is possible that it would have been better if the author had limited himself to the age of infancy. All that part which deals with the young child is full, clear and logical. It shows how far the careful clinical study of infants and their varying reactions to different forms of diet has taken us in the attempt to find a logical classification of the disorders of growth, nutrition and digestion. The part played by infection, enteral and parenteral, is clearly defined, and its relation to disturbances of digestion generally made clear. The description of the common catarrhal infections of infancy, nasopharyngitis, bronchitis, otitis media, etc., strikes us as very fresh and convincing, and derived from close and repeated observations. In all this, the German text-book has much to say, and much that is worth saying, that is not said

in the corresponding works of English authors. When, however, the age of infancy is past, it seems to us that the reverse is true. In the description of the common disorders of later childhood, we have here none of those precise clinical pictures and none of the freshness of observation which is to be found in most of our text-books upon diseases of children. Part of this may be due to the need for compression—a need which seems to find expression in the title chosen—more perhaps to the failure to realise the bearing upon pædiatrics of recent advances in general medicine—in cardiology for example. It is the work of a specialist in children's disorders rather than that of a physician with special interest in the diseases of childhood. It seems as though in the two countries the territory is approached from opposite entrances, and that, in each case, the impetus is apt to prove insufficient to reach the furthest point to be travelled. H. C. C.

DIE BEHANDLUNG SCHWÄCHLICHER KINDER IN ÖFFENTLICHER FÜRSORGE.
By Dr. JULIUS RITTER. Pp. 40. Berlin: S. Karger, 1920. Price 4 marks.

OPEN-AIR education was known to the ancients, and was practised by the Greeks, Romans and Hebrews many hundreds of years ago. In the seventeenth and eighteenth centuries such educational authorities as Locke, Rousseau and Pestalozzi commended this form of education, but it was not till 1876, when Pastor Bion, of Zurich, initiated the holiday colonies in a systematic manner for the under-nourished children of poor parents, that the movement spread rapidly throughout Switzerland and thence over the whole world. In the pamphlet before us Dr. Ritter gives a concise but very lucid account of the physiological principles upon which such open-air treatment is based and the results achieved in the case of under-nourished children predisposed to but not suffering from tuberculosis and nervous troubles, treated in his open-air school in a suburb near Berlin. He also pleads for the establishment of such "preventoria" on a large scale out of public funds. The pamphlet is interestingly and convincingly written, and should appeal to medical officers of health and others interesting themselves in child-welfare work who have a good reading knowledge of German. Its price is stated to be 4 marks. This affords no information whatever regarding the real cost of the book to any English reader who might wish to buy it. We would suggest that German publishers sending their books for review to English journals should, until the rate of exchange becomes stabilised, state the price in English money. If, as we understand, one has to pay for books at the rate of a shilling a mark, we fear that neither this pamphlet nor any of the other books that we have come across recently have much chance of a sale in this country at the present moment. W. M. F.

MEDICAL NOTES. By SIR THOMAS HORDER, M.D., F.R.C.P., Physician with Charge of Out-Patients to St. Bartholomew's Hospital. Foolscap octavo. Pp. 112. London: Henry Frowde and Hodder & Stoughton, 1921. Price 6s. net.

WE have long been indebted to the author for his collection of Dr. Samuel Gee's aphorisms, which first appeared in book form in 1902. Now we have to thank him for the collection of his own 'Medical Notes' (dedicated to the memory of Dr. Gee), many of them written in the style of aphorisms. Let us take as an example No. 13 on p. 64: "Oxygen cannot replace fresh air. For the treatment of pneumonia no amount of oxygen-inhalation is

likely to balance the deleterious effect of shut windows, a gas fire, a crowded room, and the patient's bed in a *cul-de-sac*." On the next page how well he explains that expectant treatment is not "doing nothing" and is not merely a policy of "wait and see"! Dr. Gee indicated the same method in his delightful address on "Sects in Medicine." The whole series in the present volume is concisely but clearly written, useful and suggestive. There is much to commend and perhaps a little to criticise; doubtless in years to come some author will write a learned commentary on these notes and on Dr. Gee's aphorisms, which will be much longer than all that Sir Thomas Horder and Dr. Gee have written put together. On p. 49 the author advises examination of the sputum for tubercle bacilli, however typical of pulmonary tuberculosis the case may seem to be. Similar symptoms may occur in new growth, lymphadenoma or bronchiectasis, but might not the author have added, in tertiary syphilis also? The little book should be widely read, and some practitioners will probably interleave their copies, the sayings having stimulated them to make additions and comments of their own.

F. P. W.

GRAPHIC METHODS IN HEART DISEASE. By JOHN HAY, M.D., F.R.C.P. With an Introduction by Sir JAMES MACKENZIE, F.R.S. Second edition. Pp. 178. London: Henry Frowde and Hodder & Stoughton, 1921. Price 12s. 6d. net.

INSTRUMENTAL aids in diagnosis are rapidly increasing in number. In the region of cardiology the polygraph and the electro-cardiograph have been of great value in elucidating disturbances in the mechanism of the heart-beat, which had not hitherto been recognised by ordinary clinical methods. If it be admitted, as it probably will be, that the student will understand these irregularities better by taking and studying graphic records of such disturbances, the purpose of this book will be approved.

As the author puts it, the practitioner "will gradually find that he becomes less and less dependent on these instruments with which he has served an apprenticeship, for he has educated himself to do without them. His fingers, his eyes and his ears are enough in themselves. He has made an advance as a clinician." We may add that many a prolonged academic discussion at the bedside in former days could have been brought to a prompt and definite conclusion had the polygraph or electro-cardiograph been available for making a graphic record.

It is eleven years since the first edition was published, and much new knowledge has been acquired of such disorders as auricular fibrillation, auricular flutter and paroxysmal tachycardia. The plan of the book is to give a series of tracings, normal and abnormal, and to explain them in such a way that the intelligent practitioner will be able to understand the graphic records which are now so common in medical literature, even if he has not acquired the art of making them for himself. Most of the book is occupied with a series of polygraph tracings, showing the venous and arterial curves, and there is a short section on electro-cardiograph tracings. A preference is shown on these reproductions for white lines on a dark background, but most readers would probably prefer dark lines on a white background. The tracings both in health and disease are clearly interpreted, so that the practitioner is presented with a series of standard records for comparison with any he may make for himself. These records are as suitable for the study of cardiac disturbances and irregularities in childhood as in adult life.

G. A. S.

THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XVIII.

JULY—SEPTEMBER, 1921.

Nos. 211-213.

Original Articles.

A CASE OF OXYCEPHALY.

By BERNARD MYERS, C.M.G., M.D., M.R.C.P.,

Physician to Out-Patients, Royal Waterloo Hospital for Children and Women.

THE patient, a girl, aged $12\frac{3}{4}$ years, complains of defective eyesight, otherwise she enjoys good health. The sight has apparently not been normal for some years at least. Her height is 5 ft., and she is well developed. The eyes are large, very prominent and divergent. The outer canthus is a little more elevated than normal, and makes a suggestion of a slightly Mongolian appearance. She wears glasses. The head looks short in the anterior posterior direction, but it extends very high vertically and is tower-shaped. The forehead, which attains a good height, is slightly sloping in its lower part. The nose has a badly-formed flat bridge and is pug-shaped. She has large ears, which appear to be placed lower than usual. Her complexion is pale and not clear, and her hair light brown. The mouth is usually open; in fact she is a mouth-breather, although she has no unduly enlarged tonsils or adenoids. The upper central incisors partly overlap each other; the alveolar ridge is narrow and the palate very high, especially in front. The sense of smell is impaired, sight is distinctly defective, taste and hearing are normal.

The toes of each foot are completely webbed; there is syndactyly of most of the first, second and third fingers of each hand; the little fingers are incurved. The shoulder, elbow and other joints are apparently normal. The patient is an intelligent girl, but her

mother thinks that perhaps she does not quite reach the ordinary standard for her age. The ward sister states that she acts and speaks like a normal individual. She does not suffer from headache. Her appetite is good, she sleeps well, and has no complaint with regard to her general health. The heart-dulness is normal. The pulmonary second sound is reduplicated and accentuated, and the aortic second sound is also accentuated. The lungs and abdominal organs appear to be normal. Urinary examination revealed nothing abnormal.

The mother first noticed the prominence of the eyes when the patient was in her second year. The mother is English and the father comes from Central Europe. There is no similar case in the family; the only other child, who is a girl older than the patient, is very bright, but shows a certain general likeness to her sister, and has a slightly wider distance between the eyes than is usual.

Dr. Bickerton kindly examined her eyes and reported as follows: "This case presents many of the usual symptoms met with in cases of oxycephaly.

"Orbit and position of eyes.—The external openings of the orbits are more widely separated than usual. The upper margin of the orbit is in the same horizontal plane. The margin of the orbit presents nothing abnormal excepting that on the inner side of each there is a more extensive bony margin than usual, widening the distance between the eye itself and the nose very considerably and apparently driving the eyeball outwards. The eyes themselves are placed equi-distant from the nose.

"Extra-ocular muscles and movement.—No actual paralysis of any extra-ocular muscle could be made out, but considerable weakness of the internal rectus muscle in each eye exists. The normal position of the eyes when at rest appeared to be very distinctly divergent. The right eye diverges and is directed upwards, the left eye is simply divergent. All ocular movements appear to be present, but to some extent limited, and on looking to the extreme limit of movement very distinct nystagmus is at once apparent.

"Eyeballs.—Both eyeballs are proptosed, the right rather more so than the left. This is probably due to very rapid narrowing of the orbital cavity, itself due to thickening of its bony walls, thus driving the eyeball forward.

"Pupils.—Both pupils react normally to light, but sluggishly, also to accommodation. Under atropine both pupils dilate fully and regularly.

"Vision.—The right eye is hypermetropic and astigmatic. The

left eye is myopic and astigmatic as well. Right vision corrected by sph. + 2.75 and cyl. + 2 axis 60, $\frac{6}{8}$. Left vision corrected by cyl. — 3.75 axis 45 deg. $\frac{6}{12}$ and some $\frac{6}{8}$. There appears to be a certain degree of single binocular vision, though only with an effort. When at rest probably the vision is single with the right eye only; the left, being more defective, probably is not used.

“Ophthalmoscopic examination.”—Both discs show a considerable degree of chronic optic neuritis; the margins of the discs are indistinguishable, being completely blurred. The vessels of the discs are bunched together, congested, and very tortuous. The retina itself also shows signs of having taken part in the general inflammation; it has a distinctly ‘shot-silk’ appearance, and the vessels in it show double doubly-refracting outlines. The macular region itself appears more or less normal, but there is some slight thinning at the periphery of the retina; beyond this there was nothing wrong with the fundus in either eye.

“Fields of vision.”—Both fields were remarkably contracted for white, also for blue and red; green was only just distinguishable. The field of the right eye was confined within the 20 degrees circle. The field of the left eye was rather larger and just overlapping the circle in one or two places. The field for blue corresponded with the white field, while that for red was slightly more contracted. There were no scotomata present. The contracted state of the fields of vision was most certainly due to the optic neuritis, and points to this having been very chronic. This optic neuritis is probably caused by bony pressure on the nerve at its entrance, at the apex of the organ. The prognosis as to vision is very bad: most of these cases go almost entirely blind.”

The following measurements of the head were taken:

Circumference	50.3 cm.
Antero-posterior diameter	16.4 „
Transverse diameter	14.6 „
Glabella over vertex to occiput	31.8 „
Centre of one ear to the other, over vertex	41.7 „

It is greatly regretted that permission for a photograph for publication could not be obtained. Several tracings were made and X-ray pictures taken.

H. Morley Fletcher, in a general review on oxycephaly, calls attention to the great height of the forehead, sloping gradually upwards to the vertex with feebly marked superciliary ridges, the vertex appearing pointed instead of flattened or rounded, and a ridge or bony prominence being sometimes felt in the region

of the bregma. He further states that, viewed laterally, the ears appeared to be placed on a lower level than normal. "Exophthalmos is sometimes extreme, and dislocation of the eyeballs occasionally occurs. Failure to close eyes may lead to lacrymation and conjunctivitis. Protrusion of eyeballs is often unequal. Divergent squint is common. Nystagmus is usually present. The complexion is



FIG 1.—Antero-posterior. Tracing (reduced) from root of nose, over head to the seventh cervical vertebra.

muddy, sallow and dark, especially in older patients. The hair is dark. These patients are usually mouth-breathers and have open gaping mouths, which give a stupid, vacant expression." This account agrees in most points with the notes of the present patient, although no bony ridge could be felt on the vertex; nor was there lacrymation, and her hair is light brown.

Fletcher mentions that "the palate is shortened and very high arched . . . and the incisors prominent. . . . Intelligence unimpaired generally, optic atrophy the most constant abnormality found; . . . errors of refraction, especially myopia, common . . .

smell often lost, hearing and taste usually unaffected. Malformations of ears, elbow and shoulder-joints, fingers; webbing of toes. The little fingers may be curved inwards."

My patient's symptoms correspond mostly with this description except with regard to the elbow and shoulder-joints, also she is myopic in one eye only, and the discs show chronic optic neuritis.

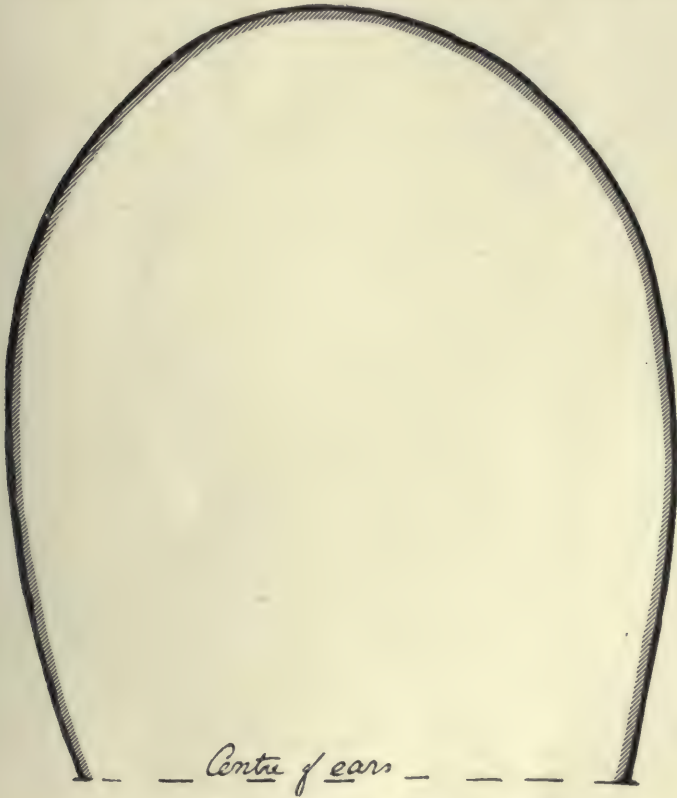


FIG. 2.—Tracing (reduced) from ear to ear, over head.

Fletcher divides the cases into three groups; in the first, exophthalmos and head deformity are present at birth, and perhaps with total blindness. These are congenital cases, and only a small proportion. In the second group changes occur in the first few months of life in the shape of the head, and the eyes are noticed to be large. The condition becomes more evident during the first two years and with increasing impairment of vision. The third group includes the cases which seem to be normal until the second to the sixth year; increasing visual defect is usually the first symptom.

I should place this case in the second group.

Some cases become totally blind, but usually perception of light remains.

With regard to duration, this abnormality does not appear to shorten life, but it has been remarked that few typical cases are seen over fifty years of age.



Anterior.

FIG. 3.—Circumference of head at level of glabella.

Concerning the cause, Fletcher believes that race is probably of no influence, and that rickets and syphilis are most likely not important; heredity is rare; the condition is more common in males than females.

Stephen Watts states—"Of the 40 cases in the collective review of Enslin and Patry none showed any signs of rickets." According to Sharpe no race is exempt and about an equal number of blondes and brunettes are affected. The condition is far more common in males than females. Heredity is of little or no effect. Apparently

syphilis is not a factor, nor traumatism. Reuben and Cleaver are of opinion that it may occur in two members of the same family and may be transmitted to the offspring.

This case showed no sign of rickets or syphilis. Heredity played no part as far as is known; she could be placed with the blondes; the mother is English, the father teutonic.

With regard to the dried skulls, Fletcher states that there is a great increase in the vertical height; the superciliary ridges and frontal eminences are absent or much reduced and the frontal region runs steeply upwards to the bregma. The frontal and mastoid sinuses are often absent. Characteristic is the premature synostosis of certain sutures, coronal and sagittal, the bregma often masked by distinct prominence or bulging. The depth of the orbit is much reduced and the external part appears pushed forwards. The orbital axes are very oblique downwards and outwards. The superior maxilla is poorly developed and reduced in length, the nasal septum is deviated, the hard palate is sharply arched, the middle fossa is deepened and widened even more than other fossæ. The sella turcica is widened and deepened centrally. It is more transparent than a normal skull.

Reuben and Cleaver state that Weir and Brugger examined four oxycephalic skulls. They found that these skulls have extraordinary development of the height, that the sagittal diameter is below normal, and that the lateral diameter more nearly approximated the normal skull. The height of the orbit is greater than the horizontal diameter and the most marked difference lies in the much greater shallowness in the oxycephalic orbits, the normal being 10 mm. deeper than the average oxycephalic orbit. This change is mostly due to change in the position of the greater wing of the sphenoid; this causes the prominence of the eyeballs. The optic foramina were not obviously narrowed in any of these cases. These skulls are usually made of very thin bone.

In this case the great height and shape of the skull is shown in the ear-to-ear tracing and in the one from the glabella to the cervical spines.

It coincides fairly closely with the above description. The tracery around the head at the level of the glabella is likewise of interest as the result is not very far removed from a circle.

The circumference of the head is a little less than the usual for her age.

Dr. Martin Berry reported on the X-ray examination as follows:

"The general impression given by the radiograms is that of a head which is rather short in the antero-posterior direction and



FIG. 4.

whose vertical measurement is greatly increased. Detailed measurements are appended at the end of this report.

"All the bones of the vault are thinned, and the convolution

markings are very plainly visible, this being especially evident in the frontal and temporal areas.

"The artery grooves are less marked than usual and the sutures are for the most part invisible; on the plate it is just possible to see the line of the lambdoid suture, but it is much fainter than normal.

"The arch of the upper teeth is narrowed and the teeth themselves are deformed; on the left side there is an unerupted canine. The arch of the palate appears high.

"The maxillary antra are smaller and more opaque than normal. The frontal and sphenoidal sinuses are distinctly larger than the average, and the ethmoid areas are very cellular and more extensive than usual; the inner margins of the orbits appear more widely separated than the average.

"The antero-posterior depth of the orbit is diminished on each side, and the shadow of the orbital margin in the anterior view, instead of being approximately circular, is elliptical, with the long axis running from above downwards and inwards, so that the highest portion is at the upper and outer part. This is more evident in the left orbit than in the right. On each side the lesser wing of the sphenoid runs upwards rather steeply.

"The sella turcica is considerably enlarged; its actual size is 11.4 mm. from front to back and 12.3 mm. deep. This depth is much greater than normal, but the antero-posterior measurement is not materially increased. The posterior clinoid processes stand out clearly and show no evidence of pressure atrophy.

"*Detailed measurements.*—The antero-posterior measurement of the skull is approximately 150 mm. as compared with the normal of 180 mm. The vertical measurement, taken from the anterior margin of the foramen magnum to the highest point of the vertex, is 165 mm.; normal is 135 mm.

"The above measurements were taken from the radiograms and due allowance has been made for distortion.

"The linear index of Retzius was taken from measurements on the patient. It is the breadth of the skull multiplied by 100 and divided by the length. The index figure in this case is 89, and anything over 80 denotes a brachycephalic skull (short head), so that this case comes definitely into that class.

"The facial angle is that included between straight lines joining the root of the nose to the centre of the alveolar margin of the upper jaw and to the anterior margin of the foramen magnum respectively. The normal angle is 73 degrees, and in this case it is 65; hence the skull is prognathous.

"The sphenoid angle is that included between straight lines joining the centre of the sella turcica with the root of the nose and with the anterior margin of the foramen magnum. The normal angle is 134 degrees; in this case it is 150, and there is therefore platybasia (flattening of the skull base).

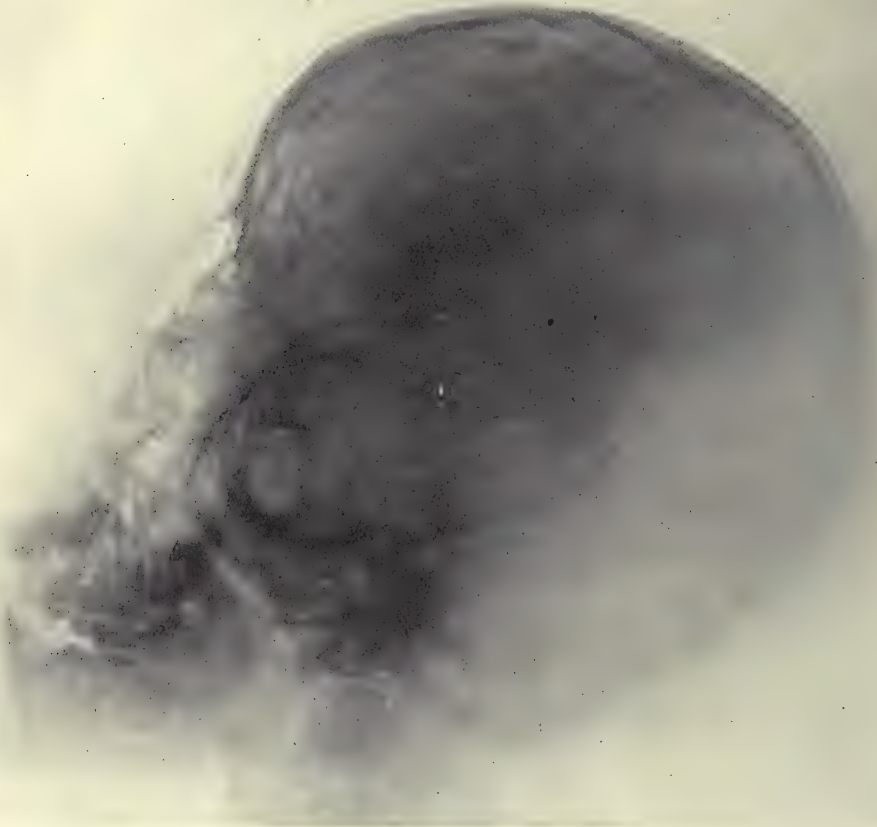


FIG. 5.

"The preceding measurements definitely place the skull in the class of turriccephaly, but there is not the bulging in the region of the bregma which is usually associated with the subdivision oxycephaly. There is not the overhanging forehead such as is associated with hydrocephalus."

In this case the X-ray appearances of the skull resemble generally those which have been previously described; the high vault, with

thin cranial bones, the so-called finger markings, the small maxillary antra, the deep middle fossa, enlarged sella turcica and diminution in depth of the orbits. It is interesting, on the other hand, to note that in this case the frontal and sphenoidal sinuses are larger than the average. Morley Fletcher found the frontal sinuses often absent. The measurements made by Dr. Berry are confirmatory of what would be expected in this condition.

Treatment.—It was desired to try the effects of pituitary, thyroid and suprarenal extracts in turn, but the parents would not allow anything to be done in the way of treatment. The suggestion that it might be advisable to relieve the intra-cranial pressure in the interest of the vision was also negated by them.

Cause of the complaint.—This does not seem to be at all clear at present. The condition is evidently due to the very early synostosis of the longitudinal and coronal sutures, whereby the growth of the skull has chiefly to take place in an upward direction. But why do the sutures synostose so early? Meningitis has been thought by some to be the cause, but this is not usually present. The belief that syphilis or rickets might predispose or otherwise produce some peculiar state of the sutures, whereby synostosis follows, is put out of court by the fact that these two diseases are apparently absent in nearly all instances. If it be granted that there is some membranous tissue normally interposing between the sutures and preventing too early bony union, and if this tissue be absent in oxycephaly or disappear early from between the sutures concerned, that might give a clue to the pathological process. Presumably such a theory might also account for the syndactylism of the toes and fingers present in this case. Still, even if such should be present, what would determine that the buffer-tissue should sometimes disappear? Could it be due to certain changes in the pituitary or other endocrine glands? If this hypothesis could be sustained, the earlier the diagnosis be made and appropriate treatment commenced, the better doubtless would be the chance of effecting improvement in the condition.

I have to thank Prof. Keith for kindly allowing me to talk over the anatomical points with him.

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RICKETS: WITH SPECIAL REFERENCE TO ITS ÆTIOLOGY,
EARLY MANIFESTATIONS AND TREATMENT.

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So much has been written on the subject of rickets that it seems almost superfluous to add to its literature. At the same time there are still many misconceptions and fallacies regarding it which are given credence to by the profession—fallacies which have been handed down from one generation to another and allowed to be recognised without question by those who ought to know better. There is a strong tendency in medical science for statements to be accepted without question, and to be copied from one book to another without a doubt being cast upon their actual truth. It is, therefore, with a view to exposing what we believe to be mistakes that this article has been written. Some, no doubt, will read it and say that to them it contains nothing new, but we feel confident that there are many others who have never before had the points we intend to emphasise brought under their notice.

As regards the *ætiology* of rickets, we would place in the front rank artificial feeding by means of so-called “infant foods”—dried milk and condensed milk. Without discussing why these products cause rickets, we may simply state that they are lacking in some element which is present in breast-milk and in the milk of animals which has been untreated—call it a *vitamine*, if you like. We prefer, for the present, to name it “the anti-rachitic principle.” When this is wanting in the material fed to the infant, no matter what that material may be, rickets will develop sooner or later. We wish, accordingly, to emphasise the fact that *rickets is essentially, in the first instance, at all events, a disease of alimentation*. Too often it is represented as being a disease of bones. This conception is entirely misleading and altogether erroneous; and yet this is the teaching of many leading authorities, while statements to this effect appear in text-books and are handed on from one set of students to another. We are firmly convinced that rickets could be practically stamped out if the sale of “infant foods,” dried milk and condensed milk were strictly regulated, and if medical men were warned against the use of these articles as a routine method of infant-feeding. Any other causes of rickets, such as bad hygiene, fall into insignificance when compared with improper feeding. When

this fact is thoroughly grasped, but not until then, we shall hope to find this disease to be practically unknown.

When we put other causes in the forefront we are apt to handicap ourselves when we come to the treatment of the disease. Those who claim that they can cure rickets by using anything but breast milk or untreated bovine milk for infant-feeding are putting forward a statement which we fear cannot be established by final results. We have seen statements made to the effect that cases of rickets have been actually cured by the use of dried milk; and we mention this lest someone may come forward to dispute our contention that dried milk can actually produce rickets. We have certainly never known it to cure the disease. As temporary measures there may be cases in which "infant foods," dried milk, and even condensed milk may be of service. This we have never questioned, but what we do say is that their *habitual* use will inevitably lead to the onset of rickets.

Passing to a consideration of the *early manifestations* of rickets, we are at once confronted with mistaken teaching—teaching which has inevitably led to early cases being unrecognised, and prophylactic treatment being neglected. To quote from one text-book as a sample of what we refer to: "Rickets is most frequently observed in children from 2 to 3 years of age," and in the same book under the heading "Symptomatology" the very first statement made is—"The skull is large in size, the forehead broad and very prominent in profile"! As if rickets commenced so late as the second year, and as if the earliest symptoms were bone changes! All this is very misleading and totally erroneous teaching, which in the past has done much to prevent the disease from being checked before permanent bone changes have been allowed to develop. We desire, therefore, to call attention to the important fact that these bone changes are not rickets: they are the *results* of rickets. One might as well say that the neuralgia which often persists after an attack of herpes zoster was that disease. The neuralgia is not herpes zoster, but the result of it. So again, a patient may have a valvular lesion after an attack of acute rheumatism, but we do not refer to this as a case of the latter disease, for we know that the heart condition is merely a result—nothing more or less. So with rickets, this disease is not one of bones. It is a disease of alimentation, and its earliest manifestations have nothing whatever to do with bone changes. In fact, if we restrict our diagnosis of rickets to those cases in which we find bone changes, then the disease at once becomes a comparatively rare one, whereas it is extremely common. It is the

mild cases which are constantly being overlooked—that is to say, those in which only the early manifestations are as yet present. If, however, the disease is unrecognised in its early stage, then it will certainly progress, and bone changes will inevitably result in due time, which, as we have already stated, are merely the *results* of rickets.

It is, therefore, of the greatest importance that one should be able to recognise a case of rickets in its early stage, when it is readily amenable to medical treatment. We may call such cases early or latent or slight rickets. It matters little what name is applied. They are cases of the disease known as rickets at all events. The early manifestations may best be divided into three groups :

(1) *Catarrhal phenomena*.—These are probably the earliest manifestations of all. The infant suffers from indigestion, as evidenced by vomiting, diarrhœa, or, it may be, constipation. This is not to be wondered at if we bear in mind that rickets is essentially a disease of alimentation. Now, it may be alleged that all these evidences of dyspepsia may be due to other causes, and undoubtedly this constitutes a source of difficulty in arriving at a correct diagnosis in any particular case presenting such symptoms. It is a safe rule, therefore, to look on them as highly suspicious, when they occur in an infant who is not either breast-fed or brought up on cow's milk. Personally we always regard them as evidences of rickets until we have proof to the contrary, when we find that the infant is being artificially fed on some substitute for ordinary cow's milk. Were this course more universally followed many early cases of rickets would be detected, and future trouble greatly minimised by applying the appropriate treatment.

Gastro-intestinal symptoms, however, are not the only catarrhal phenomena observed. There is a marked tendency to nasal, aural and bronchial catarrh in such cases. In fact, rickets may be regarded as a disease which attacks mucous membranes very specially. Not every case shows the same tendency, nor has the same evidences of mucous membrane affection. Thus some cases will exhibit bronchial catarrh, others will tend to suffer more from aural or nasal trouble, while others again may develop an eczematous or catarrhal condition of the skin. The anti-rachitic element in the food is the one thing lacking, and where this is so we may have any catarrhal affection manifested. We are well aware that breast-fed infants suffer in the same way, but there is a very special liability in rachitic infants to be thus affected. At the outset, therefore,

rickets is above all else a catarrhal disease—at least in so far as its earliest manifestations are concerned.

(2) *Nervous phenomena*.—The earliest symptoms under this heading are restlessness and irritability, attacks of crying, disturbed sleep and constant tossing about during sleep so that the bed-clothes are thrown off. The mother often remarks that the infant is “very nervous.” She may even notice that it “jumps” or “twitches” when startled. A very constant symptom is some disturbance of the sleep function. The infant is usually a bad sleeper, and is always very restless during sleep. It may start up screaming. In the daytime the complaint will usually be that the infant is “cross,” or that “nothing seems to satisfy it!” All these are nervous phenomena easily recognised, but not always attributed to rickets; although, of course, it must be admitted, as in the case of catarrhal symptoms, that they may be due to other causes. Nevertheless, their possible association with early rickets should never be lost sight of. A much more definite symptom is facial irritability, but this often develops later than the symptoms already referred to. Convulsions are rarely a very early nervous phenomenon, but when present they are pathognomonic, provided we are dealing with an infant who is being brought up on anything but breast or bovine milk. In a recent case, however, convulsions were observed almost as soon as the catarrhal symptoms; but this is quite exceptional.

(3) *Vasomotor phenomena*.—Vasomotor disturbances are usually amongst the earliest evidences of rickets. Profuse sweating is very typical. The infant sweats profusely during sleep, and in marked cases not only is the pillow wet, but beads of perspiration stand on the forehead of the sleeping infant. Sweating may also be observed while the infant is being fed. Another vasomotor phenomenon is seen in the red line left when the finger-nail is lightly drawn across the skin. This is fairly constant, and is a sign of vasomotor disturbance.

In addition to the above-mentioned symptoms we find that rachitic infants cease to grow. They may put on weight, but growth in length is arrested. This is very important, and proves beyond a doubt that a gain in weight does not always necessarily mean progress, for a rachitic infant may put on weight in the form of inert and flabby tissue. The weighing fetish has to be guarded against here. Hence the importance of always measuring infants as well as weighing them.

As to the age of onset, to say that rickets comes on about the second year is nonsense. Probably most cases definitely develop when

the infant should be cutting its first tooth—that is, between the sixth and eighth month. At the same time we have met with cases where suspicious symptoms first showed themselves as early as the middle of the third month, and these cases ultimately proved to be rachitic. Much depends on the feeding. If artificial food-stuffs are not commenced until some months after birth then the symptoms may be delayed.

Fully-developed cases of rickets are easily recognised. It is the early cases that are likely to be overlooked, and such cases will progress if not taken in hand and treated properly. They are often to all appearances well developed and of good weight, so that one is readily deceived if one merely judges by looks, as is too often the case. We have in our possession the photograph of an apparently healthy infant of seven months who at that age showed several of the evidences of rickets, including more especially facial irritability and convulsions. This baby had been reared from the second month on an artificial “food.” Accordingly, if an infant is fed artificially, and presents one or more of the symptoms already enumerated, we should, until we have proof to the contrary, make a diagnosis of rickets.

As to the *treatment* of this disease, we must, in the first place, consider its prophylaxis. Bearing in mind its chief cause, we would insist on a ban being placed on “infant foods,” dried milk and condensed milk. The way in which these are used in infant feeding is most reprehensible, and does not reflect credit on those who so use them; nor is the practice in keeping with the progress of pediatric medicine. We cannot too strongly affirm our condemnation of every one of these things in the routine feeding of infants. If breast-milk is not available, then the only proper substitute is either scalded cow’s milk, pure or diluted with water, or citrated. *There is no other proper substitute for breast-milk.* Now, when an infant is suffering from rickets it is obvious that we must stop the harmful agent, and order it to be fed only on cow’s milk. This is the first step towards successful treatment of the case. As an adjunct, but only as such, we may order cod-liver oil, either pure or in the form of a good emulsion. And here let us say that petroleum oil cannot replace cod-liver oil in the treatment of rickets; nor do we place any faith in phosphorus. When the latter is combined with ol. morrhue good results are said to be obtained; but it is the cod-liver oil, not the phosphorus, which brings about the improvement in the infant’s condition. Some believe that ol. morrhue tends to produce fatty changes in the liver. Personally we are inclined to question this.

At the same time it is a mistake to give the oil in too large doses. A few drops to an infant of six months thrice daily is generally quite sufficient. Fresh air and sunlight and massage of the limbs with olive oil are useful additional measures. Usually at the outset there are more or less marked symptoms of indigestion. These should first be remedied by a course of calomel in minute doses of one-sixth of a grain thrice daily, supplemented later by such drugs as sod. bicarb. and bismuth carb. If constipation is a marked feature of the case magnesia or a few minims of extr. cascarae liq. will generally be found to do good.

From what we have stated the importance of diagnosing *early* cases of rickets will readily be conceded, as an early case can be cured without much trouble, whereas when bone changes appear they may lead to permanent and irremediable effects, as, for example, a flat pelvis in the female. In the March number of the 'Practitioner' we wrote on the disadvantages of dried milk in infant-feeding, and pointed out that it certainly produced anæmia, rickets, or scorbutus in infants so fed. This statement has been challenged. All we can say is that our remarks applied to British children living in this country, and that probably some of our cases would not have been recognised as examples of rickets, because as yet they presented no definite bone changes, but, as already pointed out, they were cases of rickets nevertheless. After all it takes a pædiatrist to diagnose disease in infants and children, and he alone knows best, surely, what constitutes rickets and what does not. Unfortunately it is not easy to convince those who put faith in substitutes for fresh cow's milk that the latter is the only safe article on which to feed an infant who has been deprived of its rightful heritage—the milk of its mother's breasts.

ABNORMAL METABOLISM IN INFANCY AND ITS RELATIONSHIP TO SYMPTOMATOLOGY.*

By W. McKIM MARRIOTT, M.D., St. Louis.

THE metabolic processes of the infant are essentially the same in character as those of the adult, but are relatively much more active. Hence, all the organs of the body concerned with the utilisation of food are constantly working at much nearer their limits of capacity than in the case of older individuals. The margin of safety is small,

* The Annual Frederick A. Packard Lecture delivered before the Philadelphia Pediatric Society on February the 8th, 1921.

and when any of the organs are overtaxed by excessive demands made upon them, or when their functional capacity is decreased, even though only temporarily, as the result of infection or other influences, the course of metabolism may be profoundly altered. The course of metabolism may be abnormal when there is either an excessive or insufficient intake of food, or when there is a diminished functional capacity of the organ systems concerned with metabolism.

The chief characteristics of the condition, which has been described by various authors under the names of "Milchnährschaden," "Bilanzstörung," "chronic fat indigestion," or "fat constipation," are, that despite a large intake of milk, the infant fails to gain in weight, the stools are ordinarily few in number, light coloured and alkaline; a large portion of the solid material consists of calcium soaps of the higher fatty acids, chiefly palmitic and stearic, with a considerable amount of calcium phosphate also present. Metabolic studies show that the loss of fat in the form of unabsorbed soap is entirely insufficient to explain the symptoms. Further, if a small amount of fat is added to the diet to compensate for the loss by way of the bowel, it tends to aggravate the symptoms even when the total amount of fat absorbed is actually increased by this means. Again, administration of calcium and magnesium salts to make up the loss in the stools has not generally been followed by any degree of success. It has been suggested by Steinitz that the loss of base by the bowel might result in a condition of acidosis. However, the symptoms of these infants are not those of acidosis, and alkali fails to benefit the condition. Excess of protein may be excluded as being the cause, as infants suffering from this condition do very well when fed on buttermilk—a mixture containing practically the same amount of protein as whole cow's milk. In all these explanations the chemistry of the metabolism has been considered, but the physical chemistry of the metabolism has been disregarded.

The condition under consideration occurs almost exclusively in infants fed on cow's milk. Cow's milk has a slightly higher hydrogen ion concentration than breast-milk, but the difference is very slight. A much greater difference is seen in the way in which cow's milk acts when treated with acid as compared with breast-milk treated with the same amount of acid. If sufficient acid is added to an ounce of breast-milk to bring it to a certain degree of acidity, it will take three to six times as much acid to bring cow's milk to the same degree of acidity. Hence cow's milk, although slightly more acid than breast-milk, possesses a much higher alkali reserve or "buffer" value,

The first step in the digestion of milk as it enters the infant's stomach is acidification, which serves to make rennin action possible, inhibits the growth of bacteria, and to some extent to regulate the pyloric reflex. Furthermore, when the acid gastric contents are emptied into the duodenum formation of secretion occurs, with the resultant stimulation of the flow of bile and pancreatic juice. Dr. L. P. Harshman and the writer made observations on the acidity of the gastric contents at the height of digestion, which showed that when infants were fed on undiluted cow's milk the acidity was less than one-tenth of that occurring in the stomach after a meal of breast-milk. This explains why the processes of digestion and metabolism are interfered with at the very start. Moreover, they found that infants suffering from digestive disturbances almost invariably had a lesser acidity of gastric contents than did normal infants.

That the buffer substances in the milk are important factors in leading to the disturbances of metabolism is indeed true. If cow's milk is well diluted, and the caloric value made up by the addition of carbohydrate, we have a mixture of low buffer value. If cow's milk is artificially soured by lactic acid organisms, the buffer substance is largely neutralised. Such mixtures as these are very effective in the treatment of the condition. Condensed milk in the dilutions usually given has a very low buffer value, due in part to changes brought about by heating and in part to the dilution of the milk, which is invariably great. Protein milk, on account of its content of acid and its low whey content, is also very low in its buffer value. In the infant's stomach such mixtures as have been described act towards acid in a manner closely approximating breast-milk.

If overfeeding with cow's milk is continued for too long a period, especially if excessive amounts of sugar are added to the diet, diarrhoea instead of constipation is the result. Under these circumstances the stools become acid in reaction, green, and contain considerable amounts of mucus. The writer believes that bacterial decomposition of the food in the gastro-intestinal tract is perhaps the most important factor in bringing about diarrhoea. Acid fermentation in the intestine may be a result as well as a cause of infantile diarrhoea. The products of digestion of the ordinary foodstuffs have no significant peristalsis stimulating effect in the intestine, unless decomposed by bacterial action.

With the exception of bacillary dysentery, a recognised specific disease (infectious), the types of micro-organisms found in the stools of infants suffering from severe or even fatal diarrhoea are usually

not essentially different from those of the normal breast-fed infant. Examinations of the bacterial flora of the upper intestine have given more definite information. Moro and Tissier have shown on autopsy material, that the upper intestinal tract of infants dying from severe diarrhoea usually contains many organisms, largely of the *B. coli* group, whereas the intestinal tracts of infants dying from causes other than diarrhoea are relatively bacteria-free. Bossert and Bessau have demonstrated in infants suffering from diarrhoea that there is invariably an invasion of the duodenum with such organisms as *B. coli* and *B. lactis aërogenes*—organisms ordinarily present only in the lower intestine. Koessler and Hanke have shown that a strain of *B. coli* isolated from the stools may, when grown in the presence of an excess of sugar, quantitatively convert the amino-acid histidin—a product of the digestion of protein—into histamine, a substance which Mellanby has found capable of causing vomiting and severe diarrhoea when administered by mouth. This explains how an organism such as *B. coli*, which is relatively harmless in the large intestine where its substrate is not such as to allow of the production of toxic substances, may become harmful when transplanted to a portion of the intestine where conditions are favourable for the formation of substances capable of doing harm.

Hot weather and fever produce a distinct diminution of the gastric juice. When the secretions of the stomach and intestines are decreased from any cause, digestion and absorption of food is slow, and bacterial growth especially favoured by lack of the antiseptic action of the secretions. Diarrhoea, however brought about, may, if sufficiently prolonged or severe, lead to a grave disturbance of the metabolism, which is largely the result of an excessive loss of material by way of the bowel. The protein loss in the stools may be two or three times as great as in health. In severe diarrhoea as much as 87 per cent. of fat taken in may be lost in the stools (Jundell). Absorption of sugar is undoubtedly diminished in diarrhoea, and if starch is given considerable amounts may appear unchanged in the stools. We have no accurate information as to the loss of vitamins, bile-pigments and salts, though a loss of each of these substances must occur during severe diarrhoea. The total mineral loss by the bowel is very great and often exceeds the intake—sodium, potassium, magnesium and chlorides being chiefly concerned. The loss of the chlorine ion is proportionately greater than that of either sodium or potassium, so that the end-result is a loss of acid rather than of alkali by the bowel.

The loss of water in diarrhoeal stools is more marked than that of any other constituent; it may be as much as fifteen times as great as under normal conditions (Jundell). This loss of water threatens the water reserve of the body, and is an important factor in producing deep-seated changes in the intermediary metabolism. The urine of these infants is markedly diminished in volume: there may be almost anuria. It is highly concentrated. The organic nitrogen excreted by the urine and the bowel not infrequently exceeds the nitrogen intake, resulting in a negative nitrogen balance; the most striking changes are an excess of ammonia and amino-acid nitrogen. Acetone bodies may occur in the urine, but are no greater in quantity than in the urine of normal infants during a period of underfeeding. In almost all severe cases there are small amounts of glucose with or without traces of lactose or galactose.

The blood is concentrated as the result of water loss; this brings about a diminished peripheral circulation, diminished blood volume, and, as shown by Czerny, an apparently incomplete diastolic filling of the heart. Fever is a frequent occurrence.

Finkelstein, Langstein and Meyer attribute the symptoms mentioned to a poisoning of the body by sugar, especially lactose, and regard the great water loss as secondary to salt loss. The fever is explained on the basis of a specific pyogenic action of lactose and of mineral salts. Allen, Helmholtz, Sansum and Woodyat and others have been unable to show any specific toxic effect of either lactose or sodium chloride when injected into the circulation in any but overwhelming amounts and in concentrated solution.

There is direct experimental evidence that a water deficit in the body (anhydræmia) can account for the entire picture presented by these infants who, after a severe diarrhoea, have lapsed into a toxic-like condition with grave disturbances of the metabolism. In the light of our present knowledge it seems more reasonable to assume that water loss is the important factor in these infants, and that the harmful effect of an excess of food, especially of sugar, is due to the fact that it leads to an increase in the diarrhoea and consequently to water loss from the body. When anhydræmia has existed for any length of time such serious injury to the body-cells takes place that recovery may be impossible even if the lost water is restored. If, however, in diarrhoea the water loss can be checked soon enough and sufficient water and mineral matter supplied to the body, recovery may be expected.

In metabolic disturbances due to an insufficient intake of food there is a lowered resistance to infection of all kinds. Apparently

these infants suffering from this condition are always hungry, but when fed with suitable amounts of food for normal infants vomit and develop severe diarrhœa. This condition is brought about by a preceding prolonged diarrhœa.

Athrepsia is brought about by repeated attacks of diarrhœa; it is seen also in infants underfed for long periods or in those suffering from chronic infections; it is especially frequent in the premature and in those living under unhygienic surroundings. This condition may be properly considered as the end-result of partial starvation continued for long periods of time. There is a negative mineral salt balance, and when the condition is fully developed there may also be a negative nitrogen balance, indicative of body tissue destruction. There is a diminished functional capacity of the body to oxidise organic material, and the basal energy metabolism of athreptic infants is often high as compared with those who are normal. The destruction of body-substance is not confined to the solid portions of the organism, but affects the blood as well. There is a diminution in blood protein, a destruction of blood-corpuscles and a decrease in the total blood volume, resulting in a diminished blood flow which brings about a lowering of the functional capacity of all parts of the body. When the blood volume is increased there is a return of normal function.

The treatment of athrepsia consists in supplying a food containing all the essentials necessary for building up body-tissue, and one which will have at the same time a sufficient caloric value to cover the high energy needs; 150 or 200 calories per kilo or more may be needed. The capacity of these infants to utilise food may be increased by restoring the blood volume by either transfusion or intravenous injection of a solution of glucose and gum acacia. Athreptic infants may have stationary weight for long periods of time despite a fairly large intake of food. This stationary period or "period of repair" seems to be the time during which the functional capacity of the body for utilising food is returning. In these athreptic infants breast-milk is our standby. When this cannot be obtained mixtures of whole lactic acid milk with added sugar, preferably in the form of dextrin and maltose, are well tolerated.

TETANY OR SPASMOPHILIA.

The term "tetany" is here used to include all manifestations of the so-called spasmophilic diathesis, namely, carpopedal spasm, laryngismus stridulus, convulsions, characteristic hyper-excitability

of nerves to mechanical and electrical stimuli, etc. The para-thyroid glands of infants dying with tetany have sometimes shown anatomical changes, but such findings have not been constant, nor has any single dietary factor been brought into relationship to the condition, though it is more active at certain periods of the year and in artificially fed infants. During active tetany there is usually observed a decreased calcium retention, diminished calcium content of the blood and of certain organs, notably the brain, which returns to normal during the stage of convalescence. This lowered calcium content is not due to a lack of calcium salts in the diet. There seems to be failure of the body to absorb and retain such calcium as available. However, when sufficient amounts of calcium salt, especially calcium chloride, are given these infants—by mouth—suffering with tetany to increase the blood calcium to an amount approximating the normal, the manifestations of tetany invariably disappear. There is evidence to show that the development of tetany is coincident with the fall in blood calcium. In infantile tetany there is an excretion of considerable amounts of guanidin and methyl-guanidin.

In the treatment of tetany administration of calcium salts in sufficient amounts results in the disappearance of all manifestations of the condition. Calcium salts cannot be administered parenterally, and the administration by mouth results only in a slow increase in the calcium content of the blood. Magnesium has in many respects a similar physiological reaction to calcium, and may be given subcutaneously or intra-muscularly in the form of magnesium sulphate in fairly concentrated solution. The symptoms of tetany promptly disappear, and if calcium salts are administered by mouth for a considerable period of time following this the symptoms of tetany do not reappear.

PARALYSIS OF EYE MUSCLES OCCURRING IN CONNECTION WITH MASTOIDITIS; RECOVERY.*

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In the cases to be described paralysis of the eye muscles came on in the course of mastoiditis, in the first case after operation for acute

* A paper read before the Section of Otology of the Royal Society of Medicine on February the 18th, 1921.

symptoms arising in the course of chronic suppuration, in the second in the course of simple acute mastoiditis. In the latter case there was no rise of pressure in the cerebro-spinal fluid as evidenced by lumbar puncture. In the first case the cerebro-spinal fluid was under increased pressure and was slightly cloudy. In both cases recovery was eventually complete. In neither case was any extension of disease found towards the tip of the petrous bone, though it was sought for. In both cases the symptoms were suggestive of meningitis, and it would seem on the evidence available that the eye symptoms were more probably due to metastatic infection than due to direct spread of infection to the tip of the petrous bone, and so to the nerves as they cross to the outer wall of the cavernous sinus. If the infection was metastatic, it must almost certainly be a meningeal infection of the nerves and not a nuclear or central infection.

CASE 1.—Boy, aged 12 years, was seen on December the 27th, 1915. Six years previously he had had scarlet fever, and since then had suffered from right otorrhœa. On December the 7th he complained of pain on the right side of the neck and back of the neck; temperature 104° F., slight otorrhœa. On December the 10th Mr. Holman saw the boy, who then was complaining of pain in the temporal region; temperature 102° F., and there was some tenderness over the apex of the mastoid and very slight tenderness over Macewen's triangle.

On December the 11th the boy was somewhat drowsy, complained of pain in the right orbital region, temperature 102.2° F. and rather more otorrhœa.

December the 12th: Condition unchanged and operation performed. Hard mastoid. Pus found in the antrum; radical mastoid operation completed, but no further complication found. Wound sewn up and cavity packed with gauze after application of B.I.P.P. The following day there was some œdema of the side of the face and eyelids, some difficulty in opening the eye. For the next three days the state was fairly satisfactory, the œdema disappeared, the patient ate well and had no vomiting; the temperature, however, was raised in the evenings to between 100° and 102° F., though normal in the mornings, and now and then he was rather drowsy.

December the 17th: Complained of pain in the back of the neck on raising his head; this may have been due to some infection of the soft tissues behind the mastoid, and on December the 19th a second operation was performed. A few minute points of pus were opened; no pus was found in the tissues behind the mastoid. The

condition did not alter materially until December the 27th, when the boy vomited in the early morning and complained of headache. The temperature had been normal or subnormal after the second operation, but now rose to 102°F . Examination showed no nystagmus, no dysdiadokokinesis, no optic neuritis, but in view of the symptoms and some tenderness round the wound operation was decided upon. Lumbar puncture showed the cerebro-spinal fluid under increased pressure and slightly cloudy. The wound was re-opened and small septic granulations found in the bone at the top of the mastoid and towards the middle fossa. The dura mater was widely exposed and a small rough area found over the tegmen tympani (previously exposed at the first operation); after packing the dura with pure carbolic acid the brain was explored, with negative result. The lateral sinus and dura of the posterior fossa were normal. Wound left open. The following day lumbar puncture showed clear fluid, but under increased pressure; the next day the fluid was clear and under normal pressure. The patient's condition was worse, headache, nausea, no appetite, and the pulse fell to 56 and 50. On the third day after the operation there was found in the wound at least a drachm of pus (not previously or subsequently found), and what appeared to be a very small sinus in the dura of the posterior fossa. Pressure on the dura did not produce any more pus, but caused pain above the right eye.

December the 31st: Four days after the operation the boy was much better but the vision of the right eye was hazy; there was ptosis of the eyelid and dilated pupil. The next day, in addition, external strabismus was present.

From then onwards the boy made an uninterrupted recovery, though the third nerve paralysis took five or six weeks to disappear.

The needle used for exploring the brain was not introduced more than 1 in.

CASE 2.—Boy, aged 10 years. This was a case of acute mastoiditis with few symptoms. The boy was seen on May the 31st, 1920; eight weeks previously he had had chickenpox; with it some pain in the right ear, but this lasted only a short time. About three weeks later he again had pain in the right ear and slight discharge, which had continued but was very slight in amount; his temperature had been 103°F . but had dropped; he had not complained of any pain for the last three weeks. He had become much thinner the last two to three weeks. For the last ten days he had had daily vomiting of the cerebral type; his pulse-rate was 60 but had dropped to 56, 54 and 42.

Notes on examination on May the 31st: The boy is very thin and pale, mentally alert, complains of no pain except above right eye. Temperature 99.5° F., tongue moist. Ptosis of right upper lid, paresis of right external rectus and perhaps of the internal rectus; no nystagmus; pupils equal; no optic neuritis. Knee-jerks equal; Superficial abdominal reflexes normal. There is a little pus in the right meatus, deeply situated, which returned after wiping, odourless; granulation on the membrane. No tenderness over the mastoid process (the boy is one who will not admit to pain) and no thickening at the tip. A diagnosis of acute mastoiditis was made, with alternative possibility of a cerebral abscess or tuberculous meningitis.

Operation on the mastoid showed extensive suppuration; wide exposure of the dura mater of the middle fossa and posterior fossa showed dura normal. Lumbar puncture showed cerebro-spinal fluid of normal appearance and under normal pressure.

Some improvement followed operation; vomiting lessened and the pulse rose to between 60 and 80, but after about a week symptoms were again marked.

On June the 12th the wound was again opened; no further suppuration was found. The dura mater was exposed as far towards the tip of the petrous bone as was possible, but nothing abnormal was found. The temporo-sphenoidal lobe was explored but no pus was found. After this operation the boy quickly improved; the vomiting gradually ceased; the paralysis of the eye muscles had all disappeared at the end of six weeks.

Both cases had certain features in common; pain about the affected eye; nausea (or vomiting), slow pulse, combined with paralysis of the levator palpebræ superioris; but in the first case paralysis of the third cranial nerve, in the second of the sixth cranial nerve was present. It is probable that some form of meningitis was responsible for involvement of individual cranial nerves, though the evidence is very poor in the second case.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, January the 28th, 1921.

The President, Dr. FREDERICK LANGMEAD, in the Chair.

Case of Patent Ductus Arteriosus.—Dr. J. PORTER PARKINSON showed a girl, aged 7 years, who had been admitted to hospital for cough and spitting of a small quantity of blood, which apparently came from the throat. The family history was unimportant. She had never been a strong child, and had had influenza, measles and chickenpox. In 1915 she had spat up a little blood and this had continued for about two months; the attacks had occurred each following year, and between the attacks she had been well. She was a child of low intelligence with a Mongolian type of face. Cranium circumference 47 cm. No cyanosis or clubbing. The apex of the heart was in the fifth intercostal space $\frac{1}{2}$ in. inside the nipple line. The right border of deep dullness was $\frac{1}{2}$ in. to the right of the right sternal edge; the left border of dullness was continued upwards in the third and second intercostal spaces, gradually approaching the sternum. There was no thrill in the second left intercostal space. Near the sternum a loud harsh murmur could be heard continued through systole into the diastolic period, the murmur being heard, though less loudly, all over the cardiac area, in the vessels of the neck, and at the back of the chest, especially on the left side. The pulmonary second sound was not intensified. The lungs and abdomen appeared normal, and there was no enlargement of the liver or spleen. The case appeared to be typical of patency of the ductus arteriosus. The enlargement of the heart to the right was evident on percussion and was confirmed by the skiagram, as was also Gerhardt's line of dullness, prolonging upwards the dullness of the heart, and due doubtless to dilatation of the pulmonary artery. The only usual signs absent were the thrill and accentuation of the pulmonary second sound. The latter Dr. Parkinson suggested was due to patency of the interauricular septum.

Idiopathic Dilatation of the Colon.—Sir THOMAS HORDER showed a boy, aged $6\frac{1}{2}$ years, who had always had a large abdomen and the costal arch was symmetrically expanded. The abdomen was tympanitic. No large veins were visible over it, nor was there ascites. There was no fever, and he did not sweat or vomit, neither was there cardiac or renal disease. X rays showed considerable dilatation of the stomach, which lay athwart the abdomen, but was not in any sense dropped, despite obvious lack of tone. The pyloric segment lay at the top of the right iliac fossa. There was no conspicuous delay in the passage of an opaque meal. There was considerable dilatation of the cæcum and ascending colon, but the transverse colon did not appear to be dilated, but was contracted in parts and might be spastic. The boy was not constipated. The sigmoid was of normal size, but lay to the right of the mesial line. The stools did not present any special characters. The case did not seem to conform to any of the types of colon dilatation described as idiopathic.

Case of Rheumatoid Arthritis.—Dr. LANGMEAD showed a boy, aged 6 years, who had presented œdema resembling toxic œdema of the hands and feet since the age of 1 year and 9 months associated with a macular and papular rash, areas of erythema over the breast and arms and offensive motions. A vaccine prepared from the predominant organisms in the stools (*B. coli* and streptococci) produced neither local nor general reaction and failed to affect the disease, but improvement took place under small doses of thyroid.

Case of Obesity.—Dr. LANGMEAD also showed a case in a boy, aged 11½ years, admitted to hospital for excessive fatness, which had been gradually increasing for one year. At 9 years he was a thin, weakly child, at 9½ years he appeared well nourished, at 10 years he weighed 5 st. 8 lb., and four months later 6 st. 12 lb. The excess of fat first appeared on the trunk. He suffered every three or four days from nausea and severe frontal headache. No precocious development of hair. Intelligence good and no abnormal nervous signs. The urine was not increased and showed no sugar. An X-ray examination of the skull was negative. Treatment by intragluteal injection of pituitary extract was at first followed by a loss of weight, but subsequently his weight increased. Administration of thyroid in doses of 3 gr., afterwards raised to 4 gr. daily, led to a decrease in weight. Dr. Langmead regarded the case as possibly one of subnormal activity of the thyroid gland.

Case of Scleroderma and Sclerodactylia.—Dr. H. MORLEY FLETCHER showed a girl, aged 11 years, who had come under observation in 1916, when it was stated that she had been healthy until a year before. At that date she had pain and stiffness in her knees and thighs and she began to get thinner. When admitted to hospital she weighed only 28 lb. The skin was smooth and shiny, the joints stiff and painful but not swollen. After she had been in hospital twelve days nodules appeared over the shoulders, and later on the knees and thighs. The temperature, which had been normal, rose to 101° F. and remained irregular, and 90 gr. of sodium salicylate daily did not control it. No cardiac lesion developed. In ten weeks she was discharged with the diagnosis of rheumatic nodules. A few months later she was re-admitted with the joints stiffer and a diagnosis of scleroderma was made. In July, 1919, she was again admitted in much the same condition as at present, and her weight was 2 st. 8½ lb. She had nodules on the abdomen and the joints were getting stiffer. Skiagrams showed destruction and absorption of bone close to the interphalangeal joints. The family history and the Wassermann reaction were negative. Four younger children were alive and well. A section of one of the nodules showed only fibrous tissue. The teeth were in a bad condition. Thyroid extract had been given for considerable periods, but without appreciable benefit. She was put on a course of pituitrin and extract of the anterior pituitary lobe on alternate days, ½ c.c. of each, for several weeks, again without effect.

Infantilism with Marked Increase of Subcutaneous Fat.—Dr. W. J. PEARSON showed a girl, aged 5 years and 11 months, small and undersized for her age. A remarkable lipomatosis was present, limited to the trunk between the nipple line and areola, the limbs and shoulders not being affected. Thyroid deficiency seemed to be excluded by the absence of any specific features apart from infantilism. Though lipomatosis suggested the distribution seen in suprarenal cortical growth, other features, such as increase of hair and precocity, were absent.

SECTION OF DERMATOLOGY.

December the 13th, 1920.

Extensive Hairy Moles of the Face.—MR. H. S. SOUTTAR showed four children, aged from 3 to 11 years, who had been operated on for extensive hairy moles of the face, involving in each case the whole of the cheek and lower eyelid. In two cases they extended on to the forehead. The arm-flap method had been adopted. A large flap was turned up from the shoulder, using the outer part as a pedicle; the arm was brought across the head, which was turned towards the flap, and the flap was sutured into position with the greatest accuracy. The flap was in each case cut of considerably greater area than of the skin to be replaced, to allow for shrinkage and to avoid a possible ectropion due to traction on the eyelid. The pigment on the eyelid could be removed by other methods. The arm was kept bound over the head for a week, and after that the pedicle was divided and the suture completed. It was noteworthy how exactly the grafted skin took on the qualities of the normal skin of the part. To obtain this result the subcutaneous musculature should not be interfered with. If this was preserved, the skin developed the normal folds and even the actual texture of the normal skin. The cutaneous sensation became perfect within two years, and within about the same time the neuro-vascular control was regained, with the result that blushing and blanching took place on both sides in an exactly similar manner. Not only so, but they were similarly distributed, and the malar flush again became noticeable. In all the cases which Mr. Souttar had treated the lower margin of the mole had followed the naso-labial fold, in which a scar could be more easily concealed. The arm-flap method gave satisfactory results in children, to whom the prolonged restraint did not seem to be very irksome. In adults it would probably be better to adopt the newer method of tubulation.

Case of Pigmentation (? Addison's Disease).—DR. J. M. H. MACLEOD.—The patient was a boy, aged 6 years, whose skin showed a symmetrical melanotic pigmentation around the mouth, on the neck, axillæ, nipples, umbilicus, penis and scrotum, inner surfaces of the thighs, gluteal fold and popliteal spaces. The remainder of the skin had a dirty appearance and was slightly pigmented everywhere. The colour in the above-mentioned regions varied from a light brown about the neck to almost black in the nipples and genitalia. On the scrotum and penis the skin was not only pigmented but rough and thickened. The mucous membrane of the mouth was not affected. At birth the skin was normal and the pigmentation did not appear till he was several months old. The child was delicate, thin and nervous. When he was about a year old he was under treatment for tuberculous peritonitis, from which he made a fairly satisfactory recovery, but had since been delicate, rather weakly, and had suffered from occasional attacks of bronchitis. Lately he had been losing weight. The heart's action was not definitely feeble, there was no irritability of the stomach or diarrhoea, and the spleen was not palpable. The pigmentation probably resulted from tuberculous involvement of the suprarenals and fibrocaseous changes.

Case of Early Sclerodermia.—DR. MACLEOD also showed a girl, aged 14 years, with discoloured patches on the skin, especially on the trunk.

The patches were slightly pigmented with a faint brownish tinge, and presented a violaceous border which faded into the surrounding skin. The skin of the affected areas was very little altered in texture, except in two of the patches, in which it had begun to become sclerosed, white and shiny. There was a large patch occupying half of the right side of the abdomen, extending from the back downwards and forwards to near the groin, and a number of smaller patches, chiefly over the back and buttocks, and especially confined to the right side. A number of the patches on the back were oval in shape, with the long axis stretching downwards and forwards roughly in the direction of the ribs. The lesions first appeared about two years ago, immediately following an attack of acute tuberculous pneumonia. The child partially recovered from that attack, but had been delicate ever since, and was now suffering from tuberculous lung disease, involving the upper part of the right lung. The special interest of the case consisted (1) in the early stage of most of the patches (sclerosis not having set in), so as to render the diagnosis difficult; (2) in the association of the cutaneous lesions with tuberculosis—an association which Dr. MacLeod has not seen mentioned in the literature, and which seemed to be more than a coincidence. Scleroderma had been known to occur in connection with other general disturbances, such as rheumatism, myxœdema, pregnancy, alcoholism, etc. It was noteworthy that the affection was much more extensive on the right side than on the left, and that it was on the right side that the lungs were chiefly, if not solely, affected. Such cases pointed to an infective process of toxic origin being the cause of the lesions and to the vascular changes being primary.

January the 20th, 1921.

Lymphangioma of the Tongue.—Dr. ARTHUR WHITFIELD (President) showed a girl, aged 10 years, in whom the condition of the tongue had been present for at least twelve months. The tongue was slightly enlarged, and with fissures on lobes, but without soreness, and the surface showed four peculiarities: (1) Much enlarged papillæ; (2) papillomatous overgrowth with whitish horny tags, not detachable on friction; (3) when dried, minute, almost crystal-like sparkling bodies, which on close examination proved to be minute cysts; (4) enlarged capillary tufts.

Case of Xanthoma Multiplex.—Dr. H. W. BARBER showed a boy, aged 4 years, who was healthy at birth. There were three other healthy children in the family. The xanthoma lesions appeared nine months ago, and were first noticed on the hands. At present there were numerous typical xanthoma patches, chiefly situated on the backs of the hands, over the joints, at the back of the elbow-joints, in the joint flexures at the back of the knees, on the buttocks and round the ankles. The urine contained no sugar or albumin, but there was a considerable excess of cholesterol in the blood-plasma. The blood-sugar had not been estimated. There was no evidence of disease of the liver, and the child appeared perfectly well.

Case of Alopecia Areata.—Dr. BARBER also showed a boy, aged 12 years, who had had almost complete alopecia areata of the scalp of five years' duration, but had had a rapid re-growth of the hair after removal of tonsils and adenoids and subsequent vaccine treatment.

February the 17th, 1921.

Case of Hæmatolymphangioma.—Dr. E. H. GRAHAM LITTLE showed a girl, aged 12 years, with a very large swelling under the chin, almost filling up the space between clavicle and chin, and giving on palpation a feeling of a "bag of worms" as in varicocele. The skin over the swelling was bluish, and some very hard lumps could be felt in its substance. The tongue was considerably swollen, especially the left half, and was studded with small persistent vesicles like that shown by Dr. Whitfield at the last meeting. All these features were probably congenital. She had also a large baggy swelling of about six months' duration over the left scapula covered by healthy skin, and without any discharge, the mass occupying an area about 6 in. by 4 in. The patient was quite well developed otherwise mentally and physically.

SECTION OF OPHTHALMOLOGY.

December the 10th, 1920.

Case of Unilateral Leontiasis Ossea with Optic Atrophy.—Mr. N. BISHOP HARMAN showed a girl, aged 11 years, in whom a defect of the right eye had been found on examination at school in 1918. Right vision less than $\frac{6}{60}$, left vision $\frac{6}{6}$. Retinoscopy, right and left, —1 D. sphere. Right disc primary atrophy, no choroiditis. Examination of the field elicited some sense of light on the temporal side, and to a lesser degree on the nasal side. Colours could be seen in the temporal, but not in the nasal region. The fundus and field of the left eye were normal. The child's teeth were honey-combed, and her head was asymmetrical. On the right side of the head were three large bony exaggerations of certain points: one just to the right of the metopic suture, a region not infrequently slightly accentuated in children; a second forming a distinct enlargement of the anterior part of the temporal ridge; a third on the parietal base, just in front of the parietal eminence. The movements of the eye were normal. There was no exophthalmos. The child had not had headaches or neuralgia, and there was no history of illness. X-ray examination of the skull showed a massive thickening of the right side, mainly in the regions of the bony elevations and about the orbit. There was no deformity of the face or other part of the body. The Wassermann reaction was negative; the mother and sister were healthy. The patient had been seen several times since 1918; only one change had been found—the right eye was now 2 or 3 mm. more prominent than the left, but its movements were in no way affected. There had never been headaches or pains about the head. She was well grown, healthy-looking, cheerful and full of vitality.

Persistent Pupillary Membrane with Opaque Nerve-fibres in both Eyes.—Mr. NORMAN B. B. FLEMING showed a girl, aged 15 years, with a history of defective vision since birth. Right eye: Pigmented lace-like plaque adherent to the anterior surface of the lens; no strands passing to the margin of the iris; a few opaque nerve-fibres. Left eye: There was a plaque similar to that in the right eye, but stretching to the margin of the iris there were many fine pigmented strands disposed chiefly at the lower part. The fundus showed many opaque nerve-fibres. A special feature of the case was the absence of the normal iris pattern. She had 2 D. of myopia in each eye, but in spite of this and the condition above described her vision was $\frac{6}{18}$.

SECTION OF OTOTOLOGY.

January the 21st, 1921.

Foreign Body in Mastoid Antrum.—Mr. T. JEFFERSON FAULDER.—A boy, aged 8 years, was admitted on July the 7th, 1920, with a foreign body in the left ear. A blue bead was visible in the deeper part of the meatus beyond the isthmus completely filling the lumen and surrounded by a small rim of wax. No history was obtained. In the post-aural groove on the same side there was a healed scar, not of recent date, concerning which there was also no history. On July the 8th, after an attempt to extract the bead had failed, a post-aural incision in the line of the old scar was made, the auricle turned forwards and the meatus incised. The foreign body was found to have disappeared, and was not either in the meatus or the tympanum. No normal structures could be made out in the tympanum. On July the 10th the post-aural wound was re-opened. A depression was found on the surface of the mastoid process, rather below the level of the space. This was deepened and widened until the antrum was opened, exposing the bead lying among granulations. The bead was removed and the radical mastoid operation completed. It appeared to have arrived there by way of a much-enlarged aditus.

February the 18th, 1921.

Paralysis of Eye-muscles occurring in connection with Mastoiditis; Recovery.—Mr. W. M. MOLLISON (*vide* p. 135).

Middle-ear Suppuration with Paralysis of the External Rectus Muscle of the Same Side.—Dr. ARTHUR J. HUTCHISON.—A boy, aged 7 years, developed measles on June the 5th, 1918. On June the 11th he complained of pain in the right ear; this passed off during the following night. Next day he complained of pain in the left ear, and the temperature rose to 101° F. After paracentesis of the left tympanic membrane the pain ceased and the temperature dropped to normal. On June the 17th the temperature suddenly rose to 102° F. in the morning, but by the afternoon the temperature was normal and the boy appeared well. About the beginning of July the left ear began to discharge, and pain was complained of. On July the 4th a squint developed, due to paralysis of the left external rectus. Dr. Hutchison operated on the mastoid, finding only red inflamed bone, but no pus, except in the antrum and attic, and after removing the antro-attic roof found apparently normal dura mater. Four days later the temperature ran up to 103·8° F., and the pulse to 148; the boy vomited three times, and slight stiffness of the neck was detected. Lumbar puncture gave turbid fluid under considerable pressure, from which streptococci were cultivated. Lumbar puncture was repeated daily. The fluid became more and more turbid. Antistreptococcus serum was injected daily, both into the flank and intrathecally. Death took place on July the 16th. There was no autopsy.

SECTION OF SURGERY: SUB-SECTION OF ORTHOPÆDICS.

December the 7th, 1920.

Late Case of Birth Palsy.—Mr. P. MAYNARD HEATH showed a boy, aged 12 years, born as a breech presentation. When he first came under

observation in 1913 at the age of five the right arm was quite useless, but was strongly rotated inwards and held to the side and the forearm was pronated. After ineffectual attempts to overcome the internal rotation by means of apparatus, an open operation was performed, and the capsule of the shoulder-joint and the subscapularis muscle were divided. External rotation was at once obtained. When the boy was seen again recently all the limb muscles had recovered and reacted briskly to faradic stimulation. The limb was very small compared with that on the sound side, and the shoulder-girdle was considerably elevated. The arm could be abducted and rotated outwards. Movements at the elbow were poor, and supination of the forearm was completely lost owing to forward dislocation of the head of the radius. The wrist was held extended, and the boy was unable to extend his three inner fingers. If the wrist was passively flexed the fingers could be extended.

Case of Deformity about the Shoulder-joint.—Mr. MAYNARD HEATH also showed a girl, aged 16 years, who had always complained of pain and difficulty in raising the right arm. She could abduct the arm to the horizontal fairly easily and then some obstruction seemed to arise. On making further efforts a sudden movement occurred in the shoulder-joint, as if a subluxation were produced; the arm was carried a little forward and could then be elevated to the vertical. On examination the right scapula was found to be a little higher than the left; the trapezius was very poorly developed and the rhomboideus major stood out as a thick band. No abnormality could be detected in the shoulder-joint. There was slight asymmetry of the face, the right side being the smaller, and there was slight shortening of the right sterno-mastoid muscle. There was a scar in the neck where a tuberculous gland had been removed subsequently to the onset of the shoulder trouble. X-ray plates of the shoulder-joint in various positions showed no abnormality. Mr. Maynard Heath regarded the condition as a congenital defect, as evidenced by the elevation of the scapula and want of development of the face.

Suture of the Ulnar Nerve in a Girl, aged 10 years.—Mr. B. WHITCHURCH HOWELL showed a child who had received a severe cut on the right wrist and forearm on December the 24th, 1919. It was stitched up in the Casualty Department. He saw her in April, 1920, for paralysis of all the muscles supplied by the ulnar nerve below the level of the wrist. The nerve was explored on April the 24th, 1920, found divided (a band of fibrous tissue connecting the neuromata), and end-to-end suture performed with very fine catgut. On August the 26th there seemed to be some suggestion of voluntary response in the intrinsic muscles; there was a good galvanic but no faradic response. On October the 31st there was a good faradic response of all the ulnar group. On November the 20th, there was still some ulnar adduction of the little finger. Sensation and localisation good over the palmar aspect of the ulnar nerve supply, poor, if any, over dorsal aspect. Tinel's sign to finger-tips. Hypothenar muscles strong, interossei getting firmer.

Bilateral Snapping Hip with Functional Varus.—Mr. H. A. T. FAIRBANK.—Girl, aged 11 years. In May, 1920, some creaking was noticed in the right hip when rubbed. Since then the "snapping" of the right hip gradually developed and now both hips "snapped." She could produce the

snap when standing and when lying flat. In order to produce the snap she put the hip in a position of adduction with a very little flexion; the snap was produced by a movement of flexion plus external rotation, and again on rotating the thigh in. When lying flat she got the necessary adduction by tilting the pelvis up on the side on which the snap was to be produced. The snapping on the left was not so violent and loud as that on the right. Palpation during snapping suggested that the phenomenon was produced by the deep tendon of the gluteus maximus slipping forwards and backwards over the great trochanter, not by the ileo-tibial band or by the hip-joint itself. It was expected that operation would reveal the presence of a specially well-developed tendon on the deep aspect of the gluteus maximus as described by Wood Jones. Extension of the hip-joint was somewhat limited on both sides, and abduction was not quite free on the right. Skiagrams of the hip-joint were negative. For the last five or six weeks the foot had turned in. The degree of varus was variable, and she could be induced to correct it voluntarily for a few moments. The diagnosis of functional varus was confirmed by Dr. Kinnier Wilson. At the suggestion of the President Mr. Fairbank proposed to try the effect of rest in plaster.

Subluxation of Right Hip-joint following Trauma.—Mr. T. TWISTINGTON HIGGINS showed a boy, aged 8 years, who in August, 1919, fell from a tree and injured his right hip. Three weeks later he was taken to hospital, where a skiagram showed a dislocation of the head of the femur into the thyroid foramen. The dislocation was reduced under an anæsthetic and the leg put up in plaster. Eventually he returned to school and a few months later a limp developed, which became progressively worse. It was then found that the right hip was practically fixed in a position of flexion and slight adduction. There was $\frac{1}{2}$ to $\frac{3}{4}$ in. real shortening and prominence and slight elevation of the great trochanter. A skiagram showed the head of the femur subluxated apparently upwards and backwards, together with some rarefaction and alteration of structure of the femoral neck; the epiphysis appeared well formed. The case was considered to be one of partial subluxation, with possibly commencing fibrous ankylosis—the result of the original trauma—and the treatment suggested was to attempt reduction under an anæsthetic, and, if possible, fixation of the hip in the abducted position in plaster. The case was interesting owing to (1) the apparently definite history of traumatic dislocation; (2) the present condition of the hip and the possibilities of treatment.

Philadelphia Pediatric Society.

December the 14th, 1920.

J. CLAXTON GITTINGS, M.D., *President, in the Chair.*

The Treatment of Nephritis in Children.—Dr. LEWIS WEBB HILL, of Boston, read this paper, in which he reviewed our present knowledge of nephritis in childhood and its treatment in a practical manner that practitioners could use in their private practice in the home.

Dr. ALFRED STENGEL opened the discussion by expressing his appreciation of the paper, which represented a real pædiatric study. As a matter of fact,

the clinical manifestations of certain diseases were quite different in young children from that seen in adults. This was particularly true of cardiac diseases, but it was in a measure the case with renal affections. There was not in childhood the modifying influence of independent or secondary arterial disease to complicate the picture. For this reason a classification, appropriate and useful in later life, had little place in the discussion of nephritis in childhood. He was particularly interested in the prognosis and subsequent history of acute nephritis in children, and his own experience coincided with that of Dr. Hill's—that of the many cases which did not die a large percentage recovered entirely, or, at least, seemed to do so; but from a small number of observations he was compelled to suspect that the apparent recovery might not always be a complete cure. He could cite a number of instances of severe nephritis occurring in adults who had had scarlatinal nephritis in childhood and had apparently recovered. In a few of these the evidence of connection between the later chronic glomerular nephritis and the former acute scarlatinal nephritis had been especially strong because the chronic condition was recognised (and was attended by excessive pressure—200 mm. or more—and advanced arterial disease) at an age—the late teens and the early twenties—when such nephritis was unusual. In a very few cases he had seen the patient at both stages, that is, in the original acute attack and in the chronic stage. One of these was a medical man who had a severe hæmorrhagic nephritis in youth, and was kept in bed for several months and then sent to Florida for an equal period, with the result that he recovered fully. For a number of years repeated urinary and physical examinations disclosed no evidence of his former trouble. He later, in the mid-forties, developed excessive blood-pressure and other evidences of chronic nephritis, without any discoverable intervening cause for his renal disease. It was possible that a certain vulnerability without active or discoverable disease was left behind, and that under the operation of subsequent influences such as might not injuriously affect the average person, secondary renal disease occurred. This was practically the same as the persistence of some latent renal disease: vulnerability of this kind implied some organic damage, even if it was not obvious. It should be recognised that patients who had apparently recovered fully from acute infectious nephritis might still have a kidney damage that rendered them liable to subsequent revival of active disease. With regard to treatment, he had been glad to hear Dr. Hill say that he paid much attention to the protein requirements of the patient, as the usual tendency was to attempt the withdrawal of practically all protein. It was more judicious that one should know the requirements with some definiteness and only restrict the ingestion to this point, so that excessive nitrogenous excretion through the kidneys might be eliminated. Dr. Hill had mentioned 1.5 grm. per kilogramme of body-weight. Judged by experience in adults this would seem a rather too liberal amount, but the greater nitrogen requirements of the growing child must be recalled, and the adoption of this figure was another evidence that the speaker's observations were properly based upon experience in children and the consideration of the physiology of childhood. He thought that the matter of salt intake should not be based so exclusively upon the evidence of delay or deficiency in salt excretion. There was reason to believe that the excretion of salt or nitrogenous end-products in large amounts might become a source of irritation, even though the capacity of the kidney had not as yet shown evidences of impairment. A reasonable restriction of both salt and nitrogen was therefore advisable, even if no defect in their excretion was discovered. Dr. Stengel's

experience with the Edebohl operation in a few cases of nephritis in children had been very satisfactory and in two of them very dramatically so. These cases were instances of protracted nephritis with marked oedema, reduced excretion of urine and marked albuminuria. Rapid improvement in all particulars followed the operation. In apparently similar cases in adults his experience had been as unsatisfactory as it had been gratifying in childhood.

Dr. HAROLD AUSTIN (of the Rockefeller Institute) said that Dr. Hill had made an excellent selection of the functional tests which were simplest to perform and of most value for clinical classification, prognosis and therapy. He could not agree with Dr. Hill that it was established that a considerable group of cases of nephritis were due to tonsillitis. That nephritis frequently occurred associated with tonsillitis, as with other infections, was quite clear, but the precise relation between tonsillitis and the ætiology of nephritis still remained to be established. As to the use of urea as a functional test, it seemed to him that the study of the concentration of urea in the urine following the administration of a large dose of urea, or the study of the relation of the blood urea to the rate of the urea excretion by use of a suitable quotient of urea excretion, was of greater value than the mere estimation of the blood urea alone. He agreed with Dr. Hill and Dr. Stengel that extreme limitation of protein in the diet for more than a very brief period of time was not of demonstrated value and was quite possibly harmful. Concerning the relation of renal function, salt-retention and oedema, the data were extremely difficult to interpret. The differentiation between renal and extra-renal causes of salt retention was, as yet, inadequate, and salt retention, even when occurring in nephritis, could certainly be ascribed to impairment in the capacity of the kidney to excrete salt. The interpretation of the results of the Mosenthal test-meal was obscured by the impossibility of excluding extra-renal causes in some instances for the types of reaction known to occur in association with nephritis. Eppinger had shown that the administration of thyroid to individuals with parenchymatous nephritis with oedema might lead to rapid subsidence of the oedema, and that, experimentally, thyroid feeding favoured the absorption of saline injected subcutaneously. Its use in nephritis, however, demanded caution, since he observed in some cases an increase in albuminuria and hæmaturia following the administration of thyroid. He urged the importance of calibrating the syringe used in the injection of phthalein, and called attention to occasional variation in the concentration of the dye in the ampoules. He pointed out that functional tests had an importance in the study of kidney disease in addition to their value merely for purpose of clinical classification, prognosis and therapy. Any functional test applied repeatedly in the same patient must add to our knowledge of the pathological physiology of nephritis, and it was from this point of view that their use was especially to be urged.

Dr. HARRY LOWENBURG agreed with much that Dr. Hill said about the ætiology of nephritis. He called attention to the relationship between simple acute non-suppurating adenitis and hæmorrhagic nephritis. In nearly half of his cases of this kind this condition had preceded the nephritis and without follicular tonsillar involvement. As regards treatment, he said that he had had very good results from treatment based upon Dr. Martin Fischer's work, and asked Dr. Hill what he thought of Fischer's theory. His work and results on the soluble effect of acids upon gelatinous colloids and the restraining effect of neutral salts, as sodium chloride, seemed to him to be more than chimerical and to be clinically valuable. In acute nephritis

there was a local kidney acidosis which was a factor to consider, and he thought the administration of salts as mentioned by Dr. Hill was a very good procedure. However, he was unconvinced that salt in the diet of the nephritic was harmful. He believed in alkalinisation, and favoured large doses of potassium citrate. Sometimes all treatment failed. A striking result was witnessed following the injection of an autogenous vaccine made from the patient's urine from which streptococci were recovered. Hæmaturia disappeared within twenty-four hours from the time of the first injection of vaccine. If only a few of the acute nephritis cases died Dr. Lowenburg could not see any use exposing the patient to an operation as serious as Edebohl's, but he believed the operation to be of some value in selected cases of the chronic forms of nephritis.

Dr. H. I. GOLDSTEIN said that, like Dr. Lowenburg, he, too, had seen very striking results by treatment with autogenous vaccines. He did not agree with Dr. Hill that the most valuable and the most delicate test for estimating the amount of damage in the kidney was the Mosenthal test. He believed that the estimation of uric acid excretion in the urine and its retention in the blood was the most delicate test in estimating kidney function and exposed the child to no risk whatsoever, as the urea test might not be devoid of some risk and danger in children suffering from renal deficiency with urea nitrogen retention.

Dr. J. CLAXTON GITTINGS thought the Mosenthal test to be as valuable as any other single functional test. He exhibited a graphic chart as a useful indication of the progress of the disease, showing the amount of fluid intake, urinary output, and the weight at 24-hour intervals. At a glance could be seen whether the kidneys were eliminating fluid in proportion to the intake, and the relation of the output to the weight. When the output line habitually fell below that of the intake, the progress of the case could not be considered satisfactory. The most practical method of reaching a decision as to the ætiological relationship of tonsillar infection to various diseases would be in the collection of accurate statistics as to the health of the children before and after tonsillectomy. Dr. Gittings cited a case of apparently hopeless cardio-renal dropsy which he had seen in the army. Dr. Frederick M. Allen took charge of the case and fluid intake was absolutely cut off; nothing was given but pure carbohydrates such as lactose and dextrose. After six days thirst became pronounced, then small amounts of water, other carbohydrates and fat, and finally small amounts of protein were given. In those first six days when all fluid was withheld the disappearance of the dropsy was as rapid as any he had ever observed. In three or four weeks the man was able to go about for automobile rides. Recently in the Children's Hospital he had an cedematous nephritic child in whom after almost forty-eight hours of refusal to take fluid or food the œdema began to disappear, and in four or five days had practically fully disappeared. Such cases emphasised the importance of starvation and water deprivation upon the relief of œdema; such powerful measures, however, were not devoid of danger, and must be prescribed only in selected cases and under careful supervision.

Dr. LEWIS WEBB HILL, in closing, said that he had never used Fischer's methods and consequently did not speak of them. The only possible justification of vaccine therapy in nephritis would be the presence of some organism in pure culture in the urine. This probably did not often happen. Edebohl's operation certainly should be reserved for only the worst cases as a last resort. In his paper he had tried to consider the treatment of

nephritis as it applied to general practitioners in the home. The Ambard co-efficient was a complicated test, complicated as regards collecting the blood and the urine, complicated in calculating afterwards. In his opinion it had no value whatsoever in a practical way for practitioners of medicine to use in the home, and he was very much in doubt if it were of real value under any circumstances. He was sorry if he gave the impression that the two-hour test was the most valuable of all. In hospital practice, where there was access to the help of an expert laboratory worker, other tests might be done which might have greater significance, but in private practice in the home these tests were somewhat difficult, and therefore the two-hour test stood out as one of the most practical of the kidney function tests. He stood by his statement that it was the most delicate of any of the tests—so delicate that it must be interpreted with a good deal of caution.

January the 11th, 1921.

J. CLAXTON GITTINGS, M.D., *President, in the Chair.*

Presidential Address: The Physician and the Child.—Dr. GITTINGS defined a specialist as one who, by special study, training and experience, had acquired more knowledge and presumably more clinical acumen in the diagnosis and treatment of certain diseases than the general practitioner. The latter was debarred from putting in a claim as a specialist so long as a major part of his time was devoted to the general problems of disease as it presented itself in adults. Instances were cited in general practice where simple ailments might be the beginning of serious or fatal disease and where the physician without any special training often failed to recognise the unusual in the guise of the every-day malady, or having correctly diagnosed the original ailment, overlooked the development of a secondary or complicating disease. Other types of disease fundamentally easy of diagnosis remained unrecognised either from haste or from ignorance of pædiatric practice, such as scurvy, pyelitis, and so on. The principles of infant feeding were comparatively simple and easily learned, yet apparently many practitioners had decided to pass the trifling burden to the manufacturers of patent foods and condensed milk, who were so willing to assume it. Pædiatrics to-day was the only specialty which the average practitioner rarely was willing to give up. Either he should relinquish all claim to it, or else, which was much better, prepare himself adequately for the responsibility. To accomplish this it would be necessary to do one of two things—either to pursue a definite course of post-graduate instruction or else to attach himself to a hospital which had an adequate pædiatric service. If he was alert and progressive, by seeking contact with his fellows in the hospital forum and by study he could easily fit himself to solve most of the problems in pædiatrics. At the same time he could keep himself so informed that he could render a like service to his adult patients. Dr. Gittings' plea therefore was for a training of the general practitioner in the science and art of pædiatric diagnosis and treatment, since a very large proportion of his practice would be among children. For the beginner, the health or nutritional clinic offered opportunity to learn the principles underlying the maintenance of health and methods of prevention of disease. Then there should come a service in a general medical pædiatric clinic which should be continued as long as the physician could spare the time. Under proper

guidance and instruction the habit of logical reasoning and accuracy in diagnosis was acquired. Nothing could surpass the value of proper history taking and complete physical examination. The recording of essential facts in the history and physical examination stamped indelibly the man of worth; failure to do so usually spelt mediocrity. Rarely would a physician rise to great eminence who had failed either to acquire the capacity for detail or who had deliberately shunned it as uninteresting and, therefore unimportant.

Juvenile Paresis.—Dr. JOSEPH VICTOR KLAUDER read this paper, in which he quoted Leonard that there were only about 250 cases of juvenile paresis on record. It was usually stated that the disease was rare. Since modern diagnostic methods had been applied to the spinal fluid a great aid had been given in the diagnosis of obscure clinical cases, which heretofore would doubtlessly had passed as epilepsy or as idiocy with epilepsy. If a neurotropic strain of *Treponema pallidum* was the cause of paresis, there were in all probability other and perhaps equally important factors in the causation of this disease. Psychopathic inheritance, alcoholism of the parents and cranial injuries had been given as the predisposing causes of juvenile paresis. It was of interest to note that the majority if not all the causes which might be assigned in adults were essentially lacking in the development of juvenile paresis. Juvenile paresis was about equally divided between the two sexes. Cases reported had ranged from five years to late adolescence. Most frequently the disease appeared between the ages of eight and twelve years. The initial symptoms might be mental or physical. The earliest mental symptoms were referable to changes in the character and intelligence of the child. To a strange and unusual behaviour there was added a progressive dementia. Many of the early psychic disturbances in adult paretics were absent in the juvenile type. However, paresis in adolescence resembled in symptomatology the adult type. Delusions of grandeur were usually absent in the juvenile type and there was less of a distinction of the clinical types as seen in adults. Essentially the type of the juvenile paretic was the simple demented. At the time when most of these cases were older they presented the picture of imbecility with the somatic and laboratory picture of adult paresis. The early symptoms of juvenile paresis might be physical—an apoplectiform or epileptiform seizure. Or first evidence might be symptoms referable to the motor apparatus, stumbling, ataxia, incoordination of movements. Convulsions were very frequent in the course of juvenile paresis. Of the somatic symptoms those of the motor apparatus were the most conspicuous and were frequently early in their appearance. Speech defect and pupillary abnormalities were invariably present. Optic atrophy as well as tabes were combined more frequently with juvenile paresis than in the adult form of the disease. The reflexes were often exaggerated. The course of the disease was from three to five years, which was a little longer than in adults. Congenital syphilitic children might present the spinal fluid picture of paresis without having any clinical signs of the disease. These cases were probably in the “pre-paretic” stage of paresis. The blood Wassermann reaction in juvenile paresis was positive in almost 100 per cent. of cases. A negative spinal fluid would negative the diagnosis of paresis. The cell-count was the only phase in the spinal fluid examination which might be normal; the count varied from normal to a few hundred cells or more. The globulin was always positive. In dilution as low as 0.1 c.c. of spinal fluid the Wassermann reaction was positive. A definite paretic gold curve was characteristic.

Case of Gaucher's Disease.—Dr. H. BROOKER MILLS presented this case, with a description of the operation by Dr. W. Wayne Babcock and the pathological report on the spleen by Dr. Eugene J. Asnis. The patient was a three-year-old Italian child with an enormously enlarged spleen and a considerably enlarged liver. He presented so many of the classical symptoms of Gaucher's disease that the diagnosis was made clinically and a splenectomy done. He made a good recovery from the operation, but died suddenly one month later from some unknown cause.

Dr. EDWARD WEISS said that a case very similar to the one presented was autopsied recently at the Jefferson Hospital. The patient, a young Italian adult, had an immensely enlarged spleen which at autopsy weighed over 2000 grm. On microscopic examination the spleen presented the usual picture of Banti's disease, but the paraortic lymph-nodes, which were likewise enlarged, showed dilated sinuses filled with large cells possessing a pale vesicular cytoplasm and from one to four or more nuclei. These were felt to be Gaucher's cells and slides were submitted to Dr. Mandlebaum, who had made such a complete study of Gaucher's disease. Dr. Mandlebaum stated that he felt positive the case was not one of Gaucher's disease, but was unable to identify all of the peculiar cells mentioned in the sinuses of the lymph-glands. He mentioned the grouping of cells in the alveoli as the distinctive features, and this, together with the unique character of the cytoplasm and the multiple nuclei, would be of most service in establishing a correct diagnosis of Gaucher's disease.

The Reflexes in Early Infancy.—Dr. CHARLES W. BURR presented this paper, in which he reviewed the literature on this subject. There were practical difficulties in testing the reflexes in babies not present in older people. The newborn and the young infant were in a state of almost constant movement, except during sleep, on account of the numberless stimuli from within and without—stimuli to which older children paid no attention. Further, if the leg was held by the examiner while trying to get, say, the plantar reflex, the infant often immediately and persistently resisted (held the leg in rigid flexion or extension) and hence the reflex did not appear. The patellar tendon was very small in babies and to percuss it was not always easy. In a crying baby often no reflex movement could be obtained on account of the general muscular rigidity, while in the same baby at rest all reflexes might be prompt. Curiously enough, muscular contraction in other parts of the body (the leg remaining relaxed) did not reinforce the knee-jerk, *e.g.* if a child grasped something vigorously in its hands while the knee jerk was being taken, the response was neither quicker nor more rapid, nor did the foot go through a larger arc than when the child was at absolute rest in those children examined by Dr. Burr.

The children examined were all free from disease of the nervous system save one who was nine days old with a congenital peripheral facial palsy, and numbered sixty-nine in all. His conclusions were as follows:

(1) The deep and superficial reflexes (*i.e.* knee, Achilles, chin, plantar, abdominal) might be present at birth, but the absence of one or all in early infancy did not indicate disease.

(2) The plantar reflex was very variable. It might be absent up to the third month or longer, or there might be extension or flexion of the toes, or at one time there might be one movement, at another the other. Most frequently there was extension. The movement might be rapid or deliberate.

(3) The Achilles jerk was very frequently absent at birth. How late in life it might appear was unknown.

(4) Sometimes the abdominal reflex could be obtained only on stimulating the lowest third of the muscle.

(5) Whether the occasional absence of the knee-jerk in healthy adults (1-500) was congenital or the result of disease in early life could not be decided in the absence of a complete medical history. Diphtheria might permanently abolish it without persistence of other signs of nervous involvement.

(6) When the reflexes appeared after birth their appearance did not occur in any regular order.

March the 8th, 1921.

EDWARD B. HODGE, M.D., in the Chair.

Eczema from the Dermatological View-point.—Dr. FRANK C. KNOWLES gave a *résumé* of the locations of eczema in infants and children with the various external causative factors. After describing the different types of eczema, the indications for the use of lotions, dusting powders, salves and pastes were outlined. Various prescriptions were mentioned for the different types of outbreak and the manner of applications. The various irritants to be avoided were also considered.

Constitutional and Dietetic Treatment of Eczema.—Dr. J. P. CROZER GRIFFITH pointed out that the sensitive nature of the skin of the infant rendered it liable to irritation from various causes, so that in some instances the disease appeared to be purely local. In the majority, however, more distant factors were certainly operative; otherwise, common as eczema was, it would be seen more often than at present. The exudative diathesis was a prominent predisposing factor. The cases called "scrofulous" were properly to be included here, the tendency to eczema in certain regions in this condition depending upon the exudative diathesis, with which other distinctly tuberculous lesions were associated. Conditions associated with the digestive apparatus were also prominent factors. Here especially was to be mentioned overfeeding, the fat, healthy, breast-fed babies being particularly disposed to eczema. Gastro-intestinal disorders also constituted a prominent cause. Still further might be noted the specific influence of diet, the carbohydrates of various sorts being a factor, in some instances the fat, while the relationship of protein had not yet been definitely established. The fact, however, that infants with eczema were very likely to react to some of the cutaneous protein tests would suggest that protein of some sort was not without influence. Treatment might be divided into eliminative, dietetic, and medicinal. In the way of elimination, the systemic administration of purgatives at stated intervals was one of the most useful measures. As to diet, overfeeding must be avoided. Some alteration of the food in cases of eczema had often proved the most efficacious measure. Sometimes the addition of starch to the diet produced eczema, in other cases it appeared to relieve it. At times the change of one sugar to another form would be efficacious. The specific influence of the various proteins should be tested and dietetic measures applied which might be suggested by this. A similar consideration of the diet was to be given to those past the first year of life.

In the way of medicinal treatment loss of sleep must be relieved, and especially, measures taken to improve the general nutrition when this was defective. The administration of alkalies was recommended for those whose parents suffered from asthma or recurrent bronchitis with the consequent probability that the infant had inherited a tendency to eczema.

Dr. RICHARD KERN described the technique of making skin sensitisation tests in eczema as well as the reactions, which could be interpreted positive or negative.

Société de Pédiatrie, Paris.

January the 18th, 1921.

Enterococcus Meningitis and Congenital Syphilis.—M. CASSOUTE, who reported a fatal case in an infant, aged 6 months, the subject of congenital syphilis, stated that enterococcus meningitis was rare in childhood, especially in infancy. Although Tristan had recorded two cases in adults, there was no previous report of a case in a child. The present case was remarkable for its extreme virulence, death taking place after an illness of thirty-six hours. Lumbar puncture gave issue to a purulent fluid of slightly greenish tinge containing a rich growth of enterococci. M. Cassoute alluded to another fatal case of meningitis in which the cerebrospinal fluid showed *Micrococcus catarrhalis* only, which, like the enterococcus, was an organism of weak virulence living in the upper respiratory tract.

Lumbar Scoliosis from Congenital Malformation of the Fifth Lumbar Vertebra.—MM. A. MOUCHET and DUHEM showed a girl, aged 12 years, who presented lumbar scoliosis with a convexity to the left, a well-marked prominence of the transverse processes on that side and a compensatory dorsal scoliosis. X rays showed considerable deformity of the fifth lumbar vertebra. Its body was tilted in front of the base of the sacrum and to the right, the posterior arch was raised, and at the same time inclined a little to the right, so that the right pedicle almost touched the base of the sacrum. The right transverse process was barely developed, whereas the left transverse process was very large and was in contact with the ala of the sacrum. A remarkable fact about the case was that though it was undoubtedly congenital, the malformation had not been noticed until the age of ten years.

Traumatic Prolapse of the Lower Half of the Small Intestine through the Vagina.—M. L. ROCHER reported the case of a girl, aged 6 years, who was brought to hospital with the congested small intestine protruding from the vagina. The child's face, trunk and limbs were covered with bruises and she was generally in a deplorable condition. A median laparotomy was performed and the herniated intestines were with great difficulty withdrawn into the abdomen. Death from shock occurred a few hours later. The autopsy showed a transverse tear in the posterior vaginal *cul-de-sac*, which had been inflicted by a sharp piece of wood. The woman who had committed the crime, to punish the child for incontinence of urine, was found guilty with extenuating circumstances, and sentenced to three years' imprisonment and a fine of 100 francs.

Measles at the Hôpital des Enfants malades in 1920.—MM. APERT and P. VALLERY-RADOT stated that during 1920, 642 cases of measles were admitted to the Hôpital des Enfants malades; 558 were discharged cured, so that the mortality was 13·08 per cent. Although this figure was high compared with the mortality from measles in private practice or in private hospitals such as the Pasteur Hospital, where it was hardly above 4 or 5 per cent., it compared favourably with that in the children's hospitals of the Assistance Publique, where it ranged from 15 to 20 per cent. In previous years the mortality in the old measles pavilion at the Hôpital des Enfants malades had been much higher, viz. 33 per cent. in 1898, 25 per cent. in 1899 and 23 per cent. in 1900, and in some years it had been as high as 48 per cent. A great improvement had thus been effected by the opening of a new measles pavilion: 118 cases among those admitted in 1920 were complicated by broncho-pneumonia, which in 72 cases was present on admission, and in 46 developed later. Of the 72 cases 52 died—a mortality of 79·16 per cent., and of the 46 cases only 22 died—a mortality of 47·82 per cent. The great majority of the fatal cases were in children under 2 years, or in those suffering from concurrent whooping-cough and measles.

Pectoro-mammary Atrophy with Brachydactyly.—MM. E. APERT and P. VALLERY-RADOT referred to the case reported by MM. Méry and Parturier (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1913, x, p. 176), who had shown a girl with almost complete atrophy of the right breast in contrast with a well-developed breast on the left side. The sterno-costal portion of the pectoralis major was absent. In the present case the contrast between the two breasts was not so striking as the girl had not reached puberty, but the difference would certainly become noticeable later. The left nipple was half the size of the right and situated 2 cm. higher. The chondro-sternal fibres of the pectoralis major were completely absent, while the clavicular fibres were normal. The pectoralis minor could not be felt. The hand on the same side was much atrophied, its length and width being barely two-thirds of its fellow. The last four fingers were webbed, but the bony framework of each finger was independent. The ungual phalanges were much atrophied, barely moveable on the second phalanges, and much reduced in length, breadth and thickness. The nails of the index, middle and ring fingers were very small, and there was no trace of a nail on the little finger. The child, however, could make use of the hand and was able to write correctly.

In the discussion on the case M. HALLÉ stated that atrophy of the pectoralis major was not a very rare occurrence, as he had seen three cases during the war, the men being classed in the auxiliary service.

Relapse of Lethargic Encephalitis in the form of Facio-palpebral Spasm.—MM. E. APERT and P. VALLERY-RADOT reported the case of a child, aged 14 years, who three months after an attack of lethargic encephalitis developed right facio-palpebral spasm accompanied by slight disturbance of gait resembling that which occurred during the primary attack, the right leg being thrown out as in tabes. Complete recovery took place. The writers alluded to another case in which there was not complete recovery between the two attacks, but merely a remission and apyrexia.

Abstracts from Current Literature.

Tuberculosis.

Pre-natal tuberculosis (*Glasg. Med. Journ.*, 1920, I, p. 1).—**J. W. Allan** thinks that ante-natal tuberculosis is more common than is generally supposed, and he reviews the contentions of Bonney, Warthin and others. He maintains that although a fœtus or newly-born child shows no sign of tuberculosis it may contain the germ of that disease, and may later in life develop tubercular meningitis, tubercular peritonitis, tubercular joints or bones or phthisis pulmonalis.
J. ALLAN.

The pretuberculous child (*Tubercle*, 1920, I, p. 454).—**F. G. Collins** describes the pretuberculous child as one whose vitality is lowered through any cause, and in whom one or more of the following conditions persist: frequent rises of temperature, loss of weight or failure to gain in weight, chronic bronchial catarrh, carious teeth and stomatitis. Residential open-air schools are the best forms of treatment. Day schools are not recommended as the child has to return to undesirable surroundings. Convalescent homes are useful for the milder cases. 309 children were examined; 85 were definitely tuberculous, and 97 were pretuberculous; 22 of the 97 became definitely tuberculous; some others were definitely losing ground at the end of the year. Only 16 received residential accommodation.

CHRISTOPHER ROLLESTON.

The relationship between diseased tonsils and pulmonary tuberculosis (*New York Med. Journ.*, 1920, cxii, p. 902).—**W. L. Rhodes**, in the course of the last six years, has found that practically every case of pulmonary tuberculosis has a history of recurrent tonsillitis and the crypts of the tonsil are filled with thickened pus. Whilst in the army he found exactly the same condition of things, and consequently tonsillectomy was performed as an adjunct to the usual treatment for the lung condition. Beneficial results followed in the larger proportion of cases, and men could be sent back to duty who otherwise would have been sent to the rear. The writer is careful to avoid over-stating his case, but considers that a tonsillectomy is a highly important and necessary procedure as an adjunct to other measures.
J. PORTER PARKINSON.

Erythema nodosum and tuberculosis (*La Pediatria*, 1919, xxvii, p. 705).—**S. de Stefano**, commenting on a series of 23 cases collected by him from 3 to 12 years of age found a family history of alcoholism in two instances, syphilis in 2, and meningeal or pulmonary tuberculosis in 5. In 17 cases the eruption was limited to the lower extremities, in 2 to one upper extremity and in 5 to both upper and lower. In 7 there was concomitant tracheo-bronchial adenopathy, in 2 osteo-articular tubercle, and in 1 enlarged cervical glands. Von Pirquet's reaction was decidedly positive in 8 and strongly positive in the other 15. The author concludes that there must be an important relation between erythema nodosum and tubercle, and advances the theory that this disease is the result of the entrance into the circulation of specific substances which, like the tuberculin in individuals infected with tubercle and hence rich in ergines, gives rise to the formation of toxic products of digestion, i. e. of apotoxines.
VINCENT DICKINSON.

"Rhumatisme tuberculeux" or tubercular rheumatism ('*Glasg. Med. Journ.*, 1920, I, p. 241).—**L. Findlay** points out that this variety of rheumatism receives little or no mention in English literature. The condition is primary or secondary according as to whether the arthritic manifestations precede or follow the development, or at least the clinical appearance of visceral tuberculosis. The primary variety is rare. The condition may simulate ordinary rheumatic fever or acute rheumatism so closely that for a time the true nature of the infection is not appreciated. The pain and swelling may flit about from joint to joint as is so characteristic of rheumatism, be accompanied by slight fever, be followed by pericarditis, and though not, as a rule, influenced by the administration of salicylates, may apparently be so. Diagnosis is thus difficult. The whole mischief may completely resolve. Not infrequently, however, gross visceral tuberculosis develops immediately afterwards or some time later, and thus finally enables a correct diagnosis to be made. Clinical notes of three cases in children are appended. **J. ALLAN.**

Changes in the blood subsequent to tuberculin injections ('*La Pediatria*, 1920, xxviii, p. 545).—**G. Milio** investigated the specific gravity, viscosity, coagulability and hæmoleucocytic formula of the blood after intravenous injections of tuberculin in children. The first three conditions were unaltered, neither did the red blood-corpuscles undergo any variation during the treatment. The leucocytes on the other hand showed marked and constant variations. When the dose injected is yet small, a moderate degree of leucocytosis of polynuclear neutrophils is produced. With increasing doses this gives way to a leucopænia. Either the tuberculin acts on the leucopoietic centres causing hypoactivity, or else it contains some substance which has the power of dissolving the leucocytes in the circulation. The latter explanation according to Sindoni is the more probable and has this practical value—that it limits the use of tuberculin to the smallest dose which will not contain the leucolytic substance in a quantity necessary to act on the leucocytes, but which may have a stimulating action on the leucopoietic centres of the bone-marrow.

VINCENT DICKINSON.

Child tubercle according to Much ('*Tubercle*, 1920, II, p. 1).—**W. B. Christopherson**.—As regards diagnosis, in addition to the ordinary symptoms stress is laid on the changed character: the docile became quarrelsome, the intelligent backward. A difference of temperature of 2° F. is characteristic. Cough may be entirely absent in older children. Absence of cough does not exclude bronchial gland tubercle. There may be a spasmodic cough resembling whooping-cough due to pressure of the enlarged glands on the vagus, and this may produce narrowing of the bronchi, and in children up to the age of two years a very characteristic metallic cough, or from the same cause there may be difficult and audibly rattling expiration. D'Espine's sign is highly valued. Normally the voice can be heard up to the seventh year down to the seventh cervical vertebra, from the seventh to eighth year to the first dorsal vertebra, from eighth to twelfth down to the second thoracic vertebra, from the fifteenth down to the third thoracic vertebra. Further than this is evidence of disease. On percussion of the spinous processes, there may be a flatness of note in the region of the fifth and sixth thoracic vertebrae. The author states that an X-ray photograph as well as a screen examination is required. The

greatest caution must be exercised as regards the interpretation of the smaller shadows in the hilus region. Linear or lamellar shadows corresponding to the limits of a lobe appear to have special significance. These start from the hilus and radiate towards the thoracic wall. An area of criss-cross shadows not infrequently corresponds roughly with a triangular area of lung, within which a denser mottling or a cloudy opacity with darker spots including rarely brighter centres which indicate cavitation. The X-ray picture should be checked by the clinical findings, a history of influenza, and the reaction to tuberculin. For bronchial gland tubercle the water-insoluble residue after lactic acid treatment of the bacilli is recommended. A twelve weeks' course with three injections a week is recommended. Tuberculin is advised against. X rays are advised for treatment. A hard tube must be used and a screen of 3-5 mm. of aluminium must be interposed. Several fields on the chest and back are selected by X-ray screening. Two such fields are exposed at a time. There are intervals of three to eight days between the exposure. A series lasts from two to four weeks, and as a rule three or four series are required. Salt baths, massage and calcium lactate internally are also recommended.

CHRISTOPHER ROLLESTON.

An investigation into the value of diagnostic methods in pulmonary tuberculosis ('*Tubercle*,' 1921, II, p. 193).—G. H. Stewart investigated the cases of 300 children between 5-14 years of age. Sixty-six per cent. of tubercular children give a positive family history, while 52 per cent. of non-tubercular children give a similar history, and consequently this is of little value. No symptom or train of symptoms could be elicited as having a tuberculous significance. Positive sputum was found in 6, i. e. 3.8 per cent. The author considers the quantitative cutaneous reaction of Morland as of the greatest value. It is performed with human and bovine tuberculin. Every drop was allowed to dry in, and a reaction to a 1 per cent. solution was regarded as indicating active disease. If negative, it was repeated four days later. It fails among toxic cases and where resistance is high. The latter may be overcome by repeating the test. Radioscopic examinations alone are highly untrustworthy: a positive radiogram usually runs counter to the clinical findings and the quantitative cutaneous reaction.

CHRISTOPHER ROLLESTON.

Mantoux's intra-dermo-reaction in the diagnosis of infantile tuberculosis ('*La Pediatria*,' 1920, XXVIII, p. 941).—G. Salvetti records results of experiments made on 500 children by injecting $\frac{1}{10}$ mgrm. of tuberculin. He obtained a positive result in 26 per cent. and a negative in 73 per cent.—the later the age from 1 to 12 years the less was the percentage of negative results. The result was positive in 42 per cent. with a tubercular family history and 58 per cent. without it, negative in 11 per cent. of the former and 89 per cent. of the latter. In clinical tuberculous manifestations it was positive in 67 per cent., negative in 32 per cent.; in cases shown to be tuberculous by autopsy positive in 92 per cent., negative in 7 per cent. One case of erythema nodosum gave a positive result; of 4 cases of bronchial asthma 3 gave a positive reaction; of 22 cases of pleurisy 14 were positive; of 41 of pneumonia only 7 were positive; 1 case of chronic rheumatism gave a negative result, and out of 7 cases of lymphatism 6 were positive.

VINCENT DICKINSON.

The alizarine test in infantile tuberculosis (*'La Pediatria,'* 1921, xxix, p. 225).—**G. Genoese** gives details of 40 cases in which he used Roncal's method of testing the sputum with a 1 per cent. alcoholic solution of alizarine, which chemically is oxy-anthraquinone. In those cases in which the test was strongly positive, after 20 drops had been added to the sputum, a dusky red colour ensued with the formation of a purple precipitate; the colour is typical, does not change when more reagent is added, and lasts for some days. On the other hand, non-tuberculous sputum is coloured purple red, and does not give a precipitate as a rule—and in that case it is blue. In 20 normal children the reaction was negative; in 40 suffering from various diseases, there were 4 with pulmonary tubercle, 6 with peritonitis, 2 with meningitis, 1 adenopathy, 1 scrofula, 1 erythema nodosum and 1 pleural effusion in which the reaction was positive. In the two cases of tuberculous meningitis the test was applied to the cerebro-spinal fluid.

VINCENT DICKINSON.

Complete pneumothorax in an infant due to pulmonary tuberculosis (*'Brit. Med. Journ.,'* 1921, i, p. 526).—**G. Bourne**.—A boy, aged 18 months, had been attacked with measles three months ago. Since then he had suffered from anorexia, cough and wasting. Cyanosis was marked. Pulse 142, temperature 102° F., and respirations 46. The heart was displaced 2 in. to the right of the sternum. The respiratory murmur was diminished all over the left side. Fine *râles* were heard all over the right lung, back and front, especially at the base. The child died within twelve hours. At the autopsy the left lung was collapsed and studded with yellow tubercles. There was a small cavity at the apex, the interior of which communicated by a small rent with the pleural cavity. The right lung contained many miliary tubercles. The liver and spleen also contained miliary tubercles, and the kidneys showed sub-capsular deposits. The author states that the disease began in the mesenteric glands, and thus infection of the blood-stream occurred. The hilus glands were not-affected.

CHRISTOPHER ROLLESTON.

Intestinal tuberculosis (*'Edin. Med. Journ.,'* 1921, i, p. 73).—**F. M. Caird** bases his survey on forty-three consecutive cases treated in hospital, including three in children under 14 years of age. A girl, aged 7 years, had been ill for three years with paroxysmal pain chiefly in right iliac region. The child was emaciated, and the abdomen was tumid. Operation, ileo-cæcal resection with end-to-end union was carried out in two stages. There were found papillomatous stricture (ileo-cæcal), greatly hypertrophied ileum, atrophied colon and caseating glands. Recovery took place and the patient was well fifteen years afterwards. A boy, aged 9 years, gave a history of diarrhoea and swelling of the abdomen, which was tumid and showed "ladder patterns." At the operation, very similar to that of preceding case, a papillomatous stricture (ileo-cæcal) and ulcer were found. He recovered and was well eleven years later. A boy, aged 12 years, when first seen had complained for two months of loss of appetite and malaise and for one month of constipation and colic. On admission he was puny and badly nourished; the abdomen was tumid, tense and rigid; "ladder patterns" were present and there was vomiting. At the operation (resection of 6 in. of ileum) there were found annular fibroid stricture of ileum and glands. Four years later it became necessary to resect a further 24 in. of ileum, and some two and a half-years later lateral anastomosis between

ileum and transverse colon was performed. He recovered from the last operation, but in the following summer he died from marasmus. J. ALLAN.

Acute tuberculous peritonitis (*Gaz. des Hôp.*, 1919, xciii, p. 1181).—**J. Vauverts** and **Savary** discuss whether the treatment of this disease should be medical or surgical. Of 12 cases not operated on 7 were cured and 5 died. All these cases were serious, some ascitic and sometimes accompanied by pleurisy. Of 28 cases operated on half recovered and half died. The results depended greatly on the period of the operation. Early operation was very fatal, with only 16·5 per cent. of recoveries. Operation between the eleventh day and the eighth week gave 62·5 per cent. of recoveries, and later still operation gave 85·5 per cent. of recoveries. They consider, then, that early operations should not be done; in some cases the acute symptoms lessen and medical treatment alone may cure; if, however, the phenomena persist or increase laparotomy may be done; if, finally, the disease passes into a subacute or chronic state operation should be performed, especially in the ascitic variety, the results obtained being good. J. PORTER PARKINSON.

Acetone in the cerebrospinal fluid in tuberculous meningitis (*La Pediatria*, 1920, xxviii, p. 449).—**G. Genoese** in a preliminary note draws attention to the frequent presence of acetone in these cases. Out of 23 cases examined he found it present in the spinal fluid in no less than 20, but its relationship with acetonuria was not constant. Frommer's test with salicylic aldehyde was used. The author is undertaking other investigations to determine whether diacetic and oxybutyric acids are also present, and whether acetone is present also in other kinds of meningitis and in various meningeal conditions, and if it is present in otherwise normal individuals who have acetone in the urine. VINCENT DICKINSON.

Tuberculous hip disease (*Tubercle*, 1921, ii, p. 289).—**H. Sundt**.—Of 243 cases of disease in the hip-joint, 171 were tubercular, 41 Calvé Legg-Perthes disease, and 15 arthritis deformans. As many as 29·6 per cent. were non-tuberculous. It is concluded that tuberculosis of the hip is considerably less common than usually supposed, and its prognosis far worse. Pain radiating from the hip down the front or back of thigh is characteristic of arthritis deformans coxæ. There is also upward displacement of the trochanters. Hysteria often affects the hip, and may give rise to pain and contractures. The latter are often irregular. The symptoms alternate with suspicious capriciousness. CHRISTOPHER ROLLESTON.

The Lord Mayor Treloar Cripples' Hospital and College, Alton, Hants (*Med. Times*, 1920, xlviii, p. 101).—**H. Gauvain** reviews the work carried on at Alton, and mirrors well the care of the tuberculous crippled child. The treatment may be described as (1) general, (2) local, and (3) adjuvant. Under the heading of general treatment may be placed climatic, dietetic, hygienic, occupational and other forms of generalised therapy. Local treatment aims at the prevention or correction of deformity, and the treatment which must necessarily be applied to such complicating conditions as abscess and sinus formation; and lastly, under adjuvant measures of treatment are included such methods as helio-therapy, X-ray therapy, vaccine therapy, surgery and the like. J. ALLAN.

Variations in the opsonic index during vaccine therapy in tuberculosis (*'La Pediatria,'* 1920, xxviii, p. 729).—A. Corica made observations on two groups of cases—those treated with tuberculin subcutaneously and intravenously, and those with bacillary bodies in the same way. He found that in vaccine treatment there was a marked difference in the opsonin content dependent on the method of introduction. The most efficacious was the intravenous method, when the index was raised in a short time. The quantity of antigen necessary to produce this result was always small and therefore free from any anaphylactic reaction. A bacillary emulsion or tuberculin could be used indifferently, the latter, which usually causes a violent anaphylactic reaction by the subcutaneous method, causing only a very slight one when administered intravenously. An explanation may be that in the tuberculous there are no immune bodies in the general circulation. The kind of antigen used was of no importance, both tuberculin and bacillary emulsion causing a rise in the opsonic index when given intravenously, while subcutaneously this did not present any appreciable modification. There was no agreement between the opsonic index and the course of the morbid process, so that with a rise in the former there was no appreciable improvement in the lesions. All the author's cases, however, were in a fairly advanced stage, and he attributes any improvement to the use of heterologous proteins.

VINCENT DICKINSON.

Method of determining the appropriate dose of tuberculin for the individual tuberculous child (*'Arch. de Ped.,'* 1920, xxxviii, p. 641).—M. Solis Cohen attributes the failure of tuberculin therapy to the fact that the minimum dose for each patient is not ascertained, but that some dilution is used for all irrespective of the widely different susceptibility of individuals. He considers that the smallest intracutaneous dose which will produce a minimum skin reaction is the one to start with. The author's method is as follows: One-tenth of a milligramme is injected intracutaneously into the forearm distally, one millionth of a milligramme mesially, and one hundred thousandth of a milligramme proximally. If no reaction occurs one ten thousandth, one thousandth, and one hundredth of a milligramme are injected, the largest dose being proximal. If this dosage fails one-tenth of a milligramme, one milligramme, and ten milligrammes are tried. The minimum dose is repeated every three to five days until it fails to produce good results. When an increase is decided on the augmentation is at the rate of 50 per cent. At intervals tests for hypersensitiveness are made, using the dose which the patient is taking, one-tenth of the dose, and ten times the dose. If no reaction occurs, doses one hundredth, one thousand and ten thousand times the amount are given intracutaneously. If the amount given therapeutically is less than the amount taken to produce a reaction, the former is rapidly increased up to the amount of the reacting dose. Nineteen patients were treated with tuberculin T.R.; 8 were boys and 11 girls of ages varying from six to fourteen; 17 were in Turban's first stage and 2 in the second stage. No note is made as to the presence or absence of tubercle bacilli or as to the condition revealed by radiological examination. The initial dose varied from one hundred millionth of a milligramme to one hundredth of a milligramme, and was given either by mouth or hypodermically. The dose was increased in all but two, in amounts varying from 120,000 times the initial amount to 13 times the total originally administered. No reaction was obtained in 14 cases, in 4 favourable reactions were noted and in 1 a severe reaction

was recorded. The period of administration varied from 1-21 months. There was general improvement in 11 and in 5 no noticeable change occurred, and in 3 the records were insufficient. Temperature was reduced in 13, and in 10 of these to normal, it was increased in 1 and unaffected in 5. The pulse was unaffected in 12, reduced in 4 and increased in 3. Seventeen gained in weight and two remained the same. The weight gained varied from 1-22 lbs.

CHRISTOPHER ROLLESTON.

Dermatology.

A case of pemphigus neonatorum ('*Practitioner*,' 1920, cv, p. 301).—**R. Cox** describes the above condition in a male child. The disease appeared on the fourth day after birth. Death occurred on the ninth day. The buttocks, thighs and legs were little affected, but the face, neck, arms, back and groins were covered with the eruption.

F. R. B. ATKINSON.

Two cases of erythrodermia desquamativa (Moussous-Leiner syndrome) ('*La Pediatria*,' 1920, xxviii, p. 665).—**A. Gismondi** considers this condition deserves more attention not only on account of its comparative rarity, but also for its differentiation from the dermatitis exfoliativa of Ritter. The cases were in infants aged 22 and 40 days respectively, while in the first the cutaneous affection was generalised, implicating the skin of the face, with formation of peri-oral fissures; in the second the face remained almost free. In the first there was formation of epidermoidal fissures, while in the second there was a formation of small silvery scales, seeming to indicate a milder form of the disease. Moussous drew attention to the fact that the erythema of the buttocks of infants due to irritation of urine, etc., and limited to this region, and disappearing with cleanliness and suitable remedies, sometimes rapidly becomes generalised, reaching even the face. There are, however, never any vesicular elements, although a seborrhœa of the heavy scalp is common. This absence of vesiculation distinguishes it from Ritter's disease, in which the epidermic desquamation is always preceded by a more or less evident bullous formation.

VINCENT DICKINSON.

Erythrœdema ('*Med. Journ. Austral.*,' 1921, i, p. 145).—**A. J. Wood**.—This name was given by Dr. Swift, of Adelaide, to a condition met with in children consisting of redness and swelling of the hands and feet. Since that paper, read at the Tenth Session of the Australian Medical Congress at Auckland, New Zealand, in 1914, Dr. Wood has collected with Dr. Cole eighty-eight cases, and four others are described in the present paper. Blood cultivations had all proved sterile. The Shiga bacillus was found in one case. The disease may be seen as early as 3½ months of age. The majority of the author's cases were between 8 and 18 months. The most characteristic symptoms are redness of the feet and hands with coldness to the touch. The irritation of the skin is intolerable, wasting is an early symptom, and stomatitis frequent. Loss of the finger- and toe-nails is not rare. Sweating is frequently profuse. Insomnia from incessant scratching is the most trying symptom. Constipation is more often present than diarrhœa. The prognosis is good, but death has occurred. The child should spend the whole twenty-four hours in the open air. For the sweating and irritability

of the skin, the trunk and the limbs should be rubbed twice a day with methylated spirit and dusted freely with zinc and starch powder. For the irritable fingers and toes painting with tincture of iodine does good. The insomnia is the most difficult symptom to alleviate and no drug has at present proved efficacious. As regards drugs generally, pancreatic emulsion and byno-plasma have their advocates. If the child be at the breast weaning is not advisable. Milk is the best food. The three cases described died with broncho-pneumonia; their sex and age were as follows: Male, 1 year 11 months; female, 2 years; male, 1 year 8 months. The summary of 88 cases shows males 52, females 36. The youngest patient was aged 4 months, and the oldest 3 years 6 months. Patients under 9 months, 15; from 9-11 months, 28; from 12-18 months, 29; over 18 months, 16.

F. R. B. ATKINSON.

Mongolian blue spots at São Paulo (*Arch. de méd. des enf.*, 1920, XXIII, p. 721).—C. Ferreira.—During 1919, 435 infants attended the infants' dispensary at São Paulo, Brazil; 404 were whites, 21 mulattoes and 10 negroes. Mongolian blue spots were present in 17 or 4 per cent. of the whites, in 15 or 71 per cent. of the mulattoes, and in 7 or 70 per cent. of the negroes. The spots occurred in 9 cases in the intergluteal fold, in 6 in the sacro-coccygeal region, in 6 on the left buttock, in 5 on the right buttock, in 4 on both buttocks, and in 4 on the sacral region. The percentage of Mongolian spots in white infants and mulattoes was higher than in 1915-1918, while in the negro infants the proportion was lower than that in 1918 (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1919, XVI, p. 49). One mulatto infant had 7 very deep Mongolian spots in different parts of the body, viz. on the shoulders, knees, sacro-lumbar region, dorsal region and buttocks.

J. D. ROLLESTON.

Purpura in pneumococcal infection in infants (*Arch. de méd. des enf.*, 1920, XXIII, p. 689).—P. Nobécourt and R. Mathieu, who record two cases in infants, aged 7 months and 15 days respectively, state that infants and even the newborn may be affected with purpura in the course of pneumococcal infections. Judging by the small number of cases on record, this form of purpura appears to be exceptional. It may develop in the course of broncho-pneumonia or otitis of pneumococcal origin. It may apparently be primary and be followed by the more or less rapid development of a pneumococcal localisation, e.g. broncho-pneumonia or meningitis. Sometimes this localisation is delayed, and the purpura appears to be clearing up when the fatal localisation develops. Purpura of this kind indicates a pneumococcal septicæmia and is a grave prognostic.

J. D. ROLLESTON.

Notes on a case of purpura hæmorrhagica (*Med. Journ. Austral.*, 1920, I, p. 191).—E. A. Elliott describes a case in a male child, aged 3 years. The patient rapidly improved with 0.12 grm. calomel and a saline the next morning, an hypodermic injection of 0.003 grm. of morphine and 10 c.c. of horse-serum; later on the latter was repeated.

F. R. B. ATKINSON.

Xanthoma multiplex (*Med. Journ. Austral.*, 1920, I, p. 528).—W. McMurray describes a case in a female child, aged 7 years. The father suffered from xanthoma palpebrarum. The condition started at the age of

one year in the natal cleft. The eruption was most marked at both elbows, but was also noticeable in the gluteal and popliteal regions.

F. R. B. ATKINSON.

Sporotrichosis ('*Dub. Journ. Med. Sci.*' fourth series, 1921, p. 116).—**W. Beatty** reports a case of sporotrichosis of the right hand and arm in a boy, aged 12 years. Culture of pus aspirated from the abscess in the forearm was negative in the first instance, but later a pure growth of sporothrix was obtained. To recognise the condition culture is always necessary.

J. ALLAN.

Keratosis diffusa foetalis ('*Amer. Journ. Dis. Child.*,' 1921, xxi, p. 357).—**J. H. Hess** and **O. T. Schultz** state that this condition, which is sometimes known as congenital ichthyosis, is a congenital anomaly of the skin of unknown ætiology, characterised by diffuse, usually general hyperkeratosis and qualitatively abnormal cornification of the skin with decreased exfoliation of the epidermis. This combination of processes causes the formation of thick horny scales, with intervening deep fissures, the skin resembling a horny cuirass, and secondarily the process results in arrest of development and in deformities of the external ears, eyes, nose and lips. The course of the disease depends primarily upon the intensity of the skin changes, according to which the condition has been divided by Riecke into the three types of keratosis diffusa foetalis, keratosis diffusa foetalis mitror, and keratosis diffusa tarda. In the first group, of which the writers record an example, the abnormality is so extreme at birth that the infant does not survive more than a few days. In the second group the condition, though present at birth, is not developed in such an extreme degree. In the third group the skin anomalies are only slightly developed at birth, or the infant may be born without any visible changes in the skin. It is only after days, weeks or months that the symptoms reach the degree present in the second group. The essential pathological changes in keratosis diffusa foetalis are a marked increase in the horny layer of the epidermis and abnormal keratinisation of the epithelial cell structures. The hyperkeratosis which becomes the predominating element in the morbid process is believed to be the result of a preceding stage of hypertrophy and hyperplasia of the skin. In the present case the thyroid was undifferentiated and not functioning, but the writers maintain that thyroid deficiency cannot be regarded as an essential factor in keratosis diffusa foetalis unless it occurs more frequently than the literature indicates.

J. D. ROLLESTON.

Reviews.

THE PRINCIPLES OF ANTE-NATAL AND POST-NATAL CHILD PHYSIOLOGY, PURE AND APPLIED. By W. M. FELDMAN. With 6 plates and 129 illustrations. Longmans, Green & Co., 1920. Price 30s. net.

THIS important work on an important subject is clearly and tersely written, well arranged, well indexed and full of information gathered together, evidently with much pains, from widely scattered sources. It is a fitting successor to the admirable book on the 'Jewish Child' by the same author (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1918, xv, p. 159). This book is so good that it may safely be prophesied that it will take its place after Ballantyne's 'Ante-natal Pathology' and Stanley Clarke's 'Adolescence' as a text-book indispensable to paedologists.

The material dealt with consists not only of physiology pure and simple, but the cognate subjects of anatomy, physics, chemistry and mathematics, and here and there a little pathology. All these are the proper ingredients of a book on physiology. The subject is also made the more interesting and educational by the introduction of a smattering of history. In the next edition we hope that the author will add yet another overtone to his theme by telling us something of the racial or anthropological side of child physiology. This we take to be even more useful in throwing light on the physiology of the child than of the man, seeing that the infant, and especially the foetus, is so much nearer akin to the savage and to the anthropoid ape. Thus anthropology could be utilised in deciding such a question as that of the right posture for a young baby. On p. 364 emphasis is laid on the advice that an infant should only be "carried in a vertical position when it can sit up alone." Yet on p. 468 we read that "in the recumbent position the oesophageal opening becomes occluded by the gastric contents, and the accumulation of unescaped gas gives rise to distension and colic, which is only relieved by vomiting." To remove this difficulty the advice given is that of Smith and Le Wald, based on X-ray examinations, to the effect that mothers and nurses who lay their babies vertically over their shoulders are scientifically correct. Yet again we read on p. 456 that the infant stomach is horizontal rather than vertical. In these circumstances we are a little puzzled until we turn to a book on anthropology for guidance, when we learn that among most savage races, as among anthropoid apes, the babies are carried vertically. This helps to settle us in the conviction that the vertical is the natural position.

So also when we read on p. 554 that one of the essentials of a proper diet for growing children is that it should be easily digested, we think of the serious increase of disease of the teeth, tonsils, naso-pharynx and intestines in recent years, and of the strong suspicion that lack of exercise or disuse of the digestive organs is its chief cause. And when we consider the absence of these disorders among the lower races of mankind, we wonder whether the advice always to take food easy of digestion is justifiable. At any rate a few rays of light from such books as Kidd's 'Savage Childhood,' or Ploss's 'Das Kind' might be of use in this connection.

The book very rightly shows physiology rather as a guide than as a determinant of practical child rearing. It leads us in the direction of a science tempered with common sense. Occasionally the writer permits himself to

appear slightly biased in another direction by the name of some great authority, though it is true that he is careful not to do more than mention the source of his statements. Thus we can hardly accept the opinion of Gundobin (p. 464) that the infant's mouth should be swabbed with boracic lotion three times a day. Such a procedure is too much on a par with that of the careful young man who wiped his lips with antiseptics after kissing his *fiancée*.

So excellent is this book, so much has been accomplished in the short time since it was begun that it is surprising there are so few errors and omissions. None is of vital importance, but all are of such a nature as are inevitable in first editions of good books. Among them we may mention the need for further revision of the references, and the inclusion of references from Stanley Clarke's 'Adolescence,' especially in its opening chapters, and of Acland's article on sleep. The distinctions between metabolism, growth and development are not clear, and no modern work on child physiology is complete without a few words on the subject of variations. Though heredity is dealt with in a clear and interesting manner variations are not referred to except incidentally, and the word "genetics" is not in the index.

The pictures and the portraits of celebrated authors mentioned in the book add much to the interest of its pages.

H. G.

INTRODUCTION A L'ÉTUDE DES AFFECTIONS DES VOIES DIGESTIVES DANS LA PREMIÈRE ENFANCE. By A. B. MARFAN. 2^e édition, revue et corrigée. Paris: J. B. Baillière et Fils, 1921. Price 6 fr.

PROF. MARFAN, of Paris, the well-known authority on disease in children, republishes his former work of 1918, entitled, 'Étude historique et critique des affections de l'appareil digestif dans la première enfance, suivie d'un essai de classification clinique de ces affections,' which he has reviewed and amplified. These titles are sufficiently comprehensive to indicate the scope of the work. The first part, 115 pages, consists of "Histoire et Critique," while the second part is devoted to "Étiologie et Clinique." The history of these studies from 1800 is summarised, little attention having been devoted to the subject before this date. He disapproves of an anatomical basis of classification, because of early changes after death militating against accurate conclusions, and for various reasons he objects to a classification based on clinical causes, infections, intoxications and functional disorders, mainly because ætiology and pathology are very complex, and many factors are combined in individual patients. For similar reasons classifications based on bacteriological causes and on the chemistry or microscopical characters of the contents of the alimentary tract have failed. The space allotted to such sub-divisions as infections of various kinds and intoxications is well proportioned, and, needless to say, the exposition possesses the characteristic clearness and logic of the best French writers. Finally, Dr. Marfan advocates a practical classification based on the predominance of the special symptoms of these affections, viz., vomiting, diarrhœa, constipation and denutrition. But he realises that this classification is neither perfectly clear nor free from objections, although it possesses many advantages. Fortunately the use of such a nomenclature frees the physician from the horror of telling a fond mother that her infant is suffering from intoxication or decomposition.

E. C.

DIAGNOSTIK DER KINDERKRANKHEITEN MIT BESONDERER BERÜCKSICHTIGUNG DES SÄUGLINGS. Von Dr. F. FEER, Direktor der Universitäts Kinderklinik in Zurich. Berlin: Julius Springer, 1921. Price 40 M.

WITHIN the compass of some 270 pages Dr. Feer discusses the differential diagnosis of the disorders of infancy and childhood. The consideration of the various symptoms is necessarily brief, but the author is to be congratulated upon the clear way in which he presents his material, and upon a certain terseness of statement which allows him to convey a good deal of information in little space. The book contains no less than 225 photographs, every one of which admirably illustrates some classical symptom. Dr. Feer's work succeeds in placing before us the organic diseases of childhood. We find clearly depicted the physical changes which are thereby produced—for example, the characteristic facies in pneumonia or alimentary intoxication, the posture in muscular dystrophy or in the various forms of paralysis, the deformation which results from rickets or syphilis. It is a difficulty inherent in the subject that functional disorders form so great a part of the subject, and these lend themselves less easily to an analysis necessarily brief, or to pictorial representation. The practitioner may feel that the scope of the articles upon diarrhoea, vomiting, sleeplessness, dyspnoea and so forth is too restricted. H. C. C.

INFANT EDUCATION. By ERIC PRITCHARD, M.A., M.D.Oxon., M.R.C.P. Lond. London: Henry Kimpton, 1920. Price 6s. net.

THE second edition of this book is written for those interested in "child-welfare" work and for the education of mothers.

It expresses in lucid and easily-understood language the methods of preventing illness and mortality amongst babies, and, as its title indicates, expounds the principle that the infant must be educated according to its physiological and anatomical endowment.

Dr. Pritchard has many original views on this subject, and these views are the result of careful thought.

Amongst some of the points of interest we have noted is the statement that if the foetus has been accustomed to the effects of a stimulating dietary during intra-uterine development, it feels the need of such a diet when it leads a separate life, and he proceeds to recommend that meat-juice and extractives may be required to tide the infant over its early months of life. In the same way, if accustomed to alcohol, some small quantities of brandy may have to be added to the bottle.

The author turns this into a lesson against the use of stimulants during pregnancy, and also more emphatically against the use of harmful drugs; but the principle enunciated above needs careful consideration before it should be generally accepted, because it might lead to the administration of harmful substances to children when they are not really necessary.

Another point which is well brought out is the harmful effects of over-feeding, both in the mother and in the infant, and the consequent injury of digestion and of other physiological processes by the excess of waste products. As he says (p. 23): "Individuals who have a good digestion, and who live under favourable hygienic conditions, can thrive and flourish on a very limited dietary." This is a truth which needs emphasising, because most of those who deal with children realise that far more harm is done by over-feeding and by unsuitable foods than by under-feeding. This applies

to all grades of the social scale, and does not seem to be dependent entirely upon economic conditions.

There is a good description of the baby fed on excess of carbohydrates, and the sentence on p. 76 that "Part is burnt off like fat with the production of heat, and thus you will find most sugar-fed babies beaded with perspiration," is perhaps a good point to make in trying to emphasise to mothers and social workers the fact that excess of carbohydrate does harm, though it is perhaps hardly a maxim to be accepted unconditionally by physiologists.

Calorimetric value, balance and percentages are dealt with clearly and in a simple manner, and a reader is gradually led through all the main points in relation to the care and education of infants in logical sequence and with stimulating freshness.

One is glad to see that Dr. Pritchard is definitely against the use of raw milk. Those who see the amount of tuberculosis produced, in areas where this disease is rife, by the use of raw milk, cannot but support him in this opinion.

There is a good discussion on the dietary of infants after weaning, and on the importance of the formation of good habits.

The book is a useful and readable one.

C. P. L.

DR. CHAVASSE'S ADVICE TO A MOTHER. Eighteenth authorised edition, by T. D. LISTER, M.D. London: J. & A. Churchill, 1920. Pp. 336. Price 2s. 6d.

THE appearance of yet another edition—the eighteenth—of this classical work is proof enough of its sterling merits, and of the place it has earned in the literature of the subject.

The general arrangement is that first introduced in the previous edition, new matter having again been incorporated, and the book brought thoroughly up to date. The teaching conveyed throughout is thoroughly sound, and, with the exception of a few isolated points (such as the suggestion that serious organic disease other than tuberculosis in the mother forms a contra-indication to suckling, the advocacy of teething rings, and the specimen dietary for the young child, containing more milk and slop foods than some authorities would allow), is such as would, on the whole, be endorsed by most pædiatrists. Some excellent formulæ are given for the modification of cow's milk where artificial feeding is essential.

With a work of such outstanding merits it is, perhaps, somewhat hypercritical to draw attention to an occasional awkward sentence, such as that on p. 307—"Mental development depends on the amount of arterial blood reaching the brain and the manner in which it is trained"; or, on p. 311—"Continental schools for girls at this age often cause severe anæmia when they have been brought up hygienically." These blemishes are trifles, detracting in no way from the excellence of a book which well deserves its continued popularity.

The volume is supplied with an adequate index and a complete table of contents.

E. M.

LA POUPONNIÈRE. By Dr. V. WALLICH. Paris: Masson et Cie. Price 3 francs.

THIS little brochure, which deals with homes for babies, is divided into three parts. In Part I the scope and aims of these institutions are defined,

and some account is given of the work carried on at such homes in different parts of France. The objections which have been raised against them are discussed in Part II. These objections include the separation of the mother and baby, artificial suckling, the gathering together of so many infants, and economic difficulties. The future of these homes is considered in Part III. The author firmly believes in the utility of these institutions and looks to their progressive development in the future. The brochure should appeal to all engaged in welfare work and also to those interested in the care of babies and young children.

J. A.

MATERNITAS: A BOOK CONCERNING THE CASE OF THE PROSPECTIVE MOTHER AND HER CHILD. By CHARLES E. PADDOCK, Professor of Obstetrics, Chicago Post-Graduate Medical School. Pp. 210. Chicago: Cloyd J. Head & Co. Price \$1.75.

PROF. PADDOCK has produced a well-written little work on infant and maternal welfare. The book is obviously written for members of the capitalist classes. The working-class mother, especially in this country, might well be appalled on reading the author's requirements and lists of necessary articles for the confinement.

In the United States the parturient woman is prepared as for a surgical operation. The vulva is shaved, the body is bathed in a solution of perchloride of mercury. Surgical gowns, duck trousers and rubber gloves have to be provided for the physician. The lying-in room is stripped of all unnecessary furniture, the carpet is removed and the windows bared of curtains. It is interesting to compare all these precautions with Dr. Victor Bonney's account of the arrangements in an ordinary middle-class English home, and there can be but little doubt that here, as in so many other fields of medicine, America, formerly a byword of derision to the medical world, is becoming a guide and mentor to the mother country.

There are useful descriptions and pictures of various labour-saving appliances for washing the baby, and a useful cabinet on the top of which a rest for the baby is provided.

Many important points are omitted which should find a place in a book of this nature. Thus no mention is made of venereal disease, or of the necessity for the father of the bride to inquire into his future son-in-law's past as to these ailments. To infantile diarrhoea and its prevention no allusions are made, although descriptions of the commoner infectious diseases are given.

C. R.

BLOOD PICTURES: AN INTRODUCTION TO CLINICAL HÆMATOLOGY. By CECIL PRICE-JONES, M.B.Lond. Second edition, Pp. 64. With 5 coloured plates and 3 illustrations in the text. Bristol: J. Wright & Sons. London: Simpkin, Marshall, Hamilton, Kent & Co., 1920. Price 6s. 6d. net.

THIS little hand-book is not an atlas of blood pictures, though it is illustrated by plates showing the various normal and abnormal types of red and white cells which occur in the blood in health and disease. It is of convenient size and well arranged, and should be popular amongst students and practitioners. The first part of the book describes the technique of blood examination, the types of blood-cells, and the normal blood picture; the second part deals with the written accounts of the blood picture of various diseases—bacterial (coccal and bacillary) infections, protozoal infec-

tions, blood diseases, malignant disease. There is a short appendix on the measurement of red blood-cells, and lastly, a phylogenetic diagram illustrating the supposed relationship and derivation of the various blood- and marrow-cells, from the ancestral giant-cell downwards.

Haldane's hæmoglobinometer is the one described in Part I. Sahli's is preferred in many parts of the Continent, but Haldane's is doubtless able to hold its own. Moreover, Sahli's present method of estimating the hæmoglobin in terms of *per 70* instead of *per 100* is rather inconvenient. We are glad to find a short chapter devoted to blood pictures in cases of malignant tumour, as it must be admitted that the morphological elements of the blood may be greatly, though variously, affected in such cases, especially when there is considerable neoplastic infiltration of the bone-marrow. We are likewise pleased to read (p. 53), under "Lymphanæmia and Leukanæmia," that these conditions "may be regarded as associations of pernicious anæmia with lymphoid and leukoid leukæmia respectively." Perhaps under "Pseudo-leukæmia" (p. 53) the so-called "aleukæmic" conditions or stages in various diseases of the blood-forming tissues might have been rather more fully considered. In the chapter dealing with the blood pictures in bacterial infections it might have been stated that the lymphocytosis in some cases, as pointed out by Cabot and more recently by others, may occasionally be so great as to simulate lymphoid leukæmia; expert clinicians have sometimes been deceived.

F. P. W.

LE FRANÇAIS. By P. DESSAGNES. Paris: Masson et Cie., 1919. Pp. 304. Price 5 fr. net.

PROF. DESSAGNES has in this elementary French course struck a new note in the teaching of a foreign language. The book, which is meant for English students, contains a minimum of English words, the lessons being given by what the author calls the "intuitive and direct method." The object aimed at is the double one of teaching the language in the quickest possible way, and of developing initiative and reasoning power in the student, while the method adopted is essentially a synthetic one, the teacher building up the language step by step with the collaboration of the pupil, proceeding from the simplest to the most complex ideas.

The grammatical rules, which are reduced to a minimum, are introduced by degrees as they are needed, these few essential rules being given entirely in French. Each of the seventy lessons in the book consists partly of new words, printed in heavy type, and partly of recapitulation of words and ideas already mastered. The book should have a useful part to play in making the introduction to the study of the French language easy and attractive to the child's mind, and so of rendering more accessible to him the treasures of French literature.

E. M.

YOUR CHILD TO-DAY AND TO-MORROW. By SIDONIE MATZNER GRUENBERG. Second Edition, revised and enlarged. Pp. 255. London and Philadelphia: J. B. Lippincott Co., 1920. Price 7s. 6d. net.

MUCH has been written lately, both in America and in England, on the subject of the new educational outlook with its fundamentally changing conception of education. The rights due to each child are being crystallised down into those of opportunity and freedom, practically every new book on the subject emphasising one or other of these aspects. The book now under notice, which is addressed rather to parents than to teachers, sets forth no

revolutionary or original views, and, indeed, contains little to which any modern educationalist would object except on the score of inadequacy. Freedom is conceded to the child by the author, but freedom within limits—and her limits are not very wide according to modern ideas. An English educationalist has recently said that there is no analogy whatever between the effects of partial and of complete freedom, and in the partial freedom advocated by Mrs. Gruenberg, who believes that the young child would really rather obey than be left to his own decisions, there is much of that imposition of control from without, which the newer educational reformer deprecates.

Among the "problems for parents" discussed are punishment—which has a definite place in the author's scheme—adolescence, imagination, heredity, ideals and ambitions, the training of the will, work and play. With regard to this last subject a useful distinction is made between *games*, in which the child outgrows his interest about as fast as they lose their educational value, and *play*, the purposive nature of which is, of course, one of the vital principles at the root of all educational reform from kindergarten teaching downwards.

In the chapter on sex teaching a short bibliography is given of books on the subject written for parents by American and other writers. We note, however, the omission of any reference to Miss Norah March's excellent book 'Towards Racial Health,' which might well have found a place in a representative list.

Mrs. Gruenberg's book, which is a plea for the proper understanding of a child's mind through its various stages of development, and for the provision of adequate opportunities for its development, should be found useful by the section of the public to whom it is addressed. E. M.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Thirty-first Session. Held on June the 16th, 17th and 18th, 1919. Vol. xxxi. Edited by OSCAR M. SCHLOSS, M.D.

THIS volume includes several papers of interest.

Dr. McKim Marriott combats Finkelstein's views as to alimentary intoxication in his paper upon "The Pathogenesis of Certain Nutritional Disorders." He would explain all the clinical symptoms as due directly to the loss of water and to the consequent anhydræmia. From the too concentrated blood little urine is secreted, so that end-products of metabolism, including acids, are retained in the body. By restoring sufficient fluid to the body, Dr. Marriott maintains, the symptoms of intoxication are relieved. He points out that the symptoms of intoxication in the sense of Finkelstein are to be seen in many other conditions—in pneumonia for example. We can agree with this, though hardly with the statement that they can be produced by simple abstention from fluid. This terminal condition in young children, characterised by hyperpnœa, acidosis, expressionless facies, vasomotor paresis, and a coma which is curiously incomplete in that the child can be roused from it by gentle stimulation, only to relapse into it again whenever the crying ceases, is certainly a phenomenon of very complex origin in which a variety of vital functions are impaired. According to Finkelstein hepatic insufficiency plays the chief part, according to the author of this paper renal insufficiency and anhydræmia. Dr. Marriott does not deny or attempt to explain the good effect of a withdrawal of food or the so-called paradoxical reaction to food. The paper is of great interest and highly suggestive.

Dr. F. B. Talbot summarises in an important paper with the aid of very instructive diagrams some of the results of his work upon the caloric requirements of normal infants and children. His figures as to the increased demand for food consequent upon muscular activity and wakefulness are of great practical value.

Among the more strictly clinical contributions is an interesting summary by Dr. J. Lovett Morse of the future history of cases under his care for convulsions in infancy. His figures, carefully analysed, emphasise the rarity of persisting epilepsy in cases of convulsions clearly due to spasmophilia as well as the high percentage of recovery in cases thought to be epileptic from the first. The volume contains many other interesting communications. The discussions which follow in most cases cannot always be said to make quite so favourable an impression. Many of the remarks are so loosely worded as to leave some doubt as to their precise meaning. As a whole the discussions seldom show any great difference of opinion or add any new material. That which followed Dr. Chapin's paper, in which he criticises the view that the energy derived from food may be usefully stated in terms of its caloric values, alone provoked a spirited opposition. H. C. C.

THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XVIII. OCTOBER—DECEMBER, 1921. Nos. 214-216.

Original Articles.

CEPHALIC BRUITS IN CHILDREN.

By GEORGE F. STILL, M.A., M.D., F.R.C.P.,
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Most recent text-books on diseases of children pass over in silence the subject of intracranial bruits; partly, no doubt, because these bruits have no recognised pathological significance, and partly perhaps because it has been generally assumed that they have no clinical interest. The following case, however, shows that this latter reason is ill-founded.

Boy, aged 8 years. For the past three years he had complained occasionally of noises in his head, particularly in his left ear. It troubled him specially at night and was sometimes sufficient to keep him awake. He was an excitable, imaginative boy, and so little attention had been paid to his complaints until a few days before I saw him. It had happened then that whilst he was lying on his mother's bed his head had rested against her's, and his mother, to her surprise, herself heard the noise in his head. Dr. A. Bevan was then consulted. He found nothing amiss in the boy's health. He asked the boy whether the noise was still present, whereupon the boy covered his left ear with the palm of his hand and said he could hear it still. When asked to let the doctor hear it, the boy pressed the doctor's head against his so as to bring his left ear in close contact with the doctor's right ear, and the doctor could then distinctly hear a systolic bruit. As the boy had had otitis media

with scarlet fever about three years earlier an ear specialist was called in consultation, but was unable to detect the bruit and found the ears normal. A day or two later I saw the boy with Dr. Bevan and the child gave me the same demonstration of the bruit. It was well heard at both ears, perhaps a little louder at the left than at the right, and was a low-pitched systolic bruit, very like the functional bruit which is not infrequently heard over the middle of the præcordium in children. It was definitely a bruit and not merely the thud of pulsation.

The occurrence of a bruit over the open fontanelle in infants is very generally known, but this intracranial bruit in older children and especially the recognition of its presence by the child himself are, I think, less known.

The late Sir William Osler (4) recorded a very similar case as long ago as 1880. His patient was a girl, aged 3 years, who was conscious of the bruit in her head, and in this case also the mother had noticed the sound. It was loudest in the temporal regions; it could be heard also over the carotids. Pressure on the carotids caused it to disappear. The bruit in the head was still audible when the child was 7 years old. The child was quite healthy otherwise.

Whatever, therefore, may be the significance of the bruit, it has, at least, this much of practical importance—that its presence may be recognised not only by the child but also by the parents, and may give rise to anxiety, so that it is, I think, worthy of consideration.

Osler states that there is remarkable unanimity amongst all who have written on the subject as to the age at which the murmur prevails. The extremes, he says, are the third month and the sixth year; the majority occur in the second year. He says that he does not know of any recorded instance of the murmur persisting so late as in the case he described. He refers to two writers who had dealt with the subject before him, namely, J. D. Fisher (1), of Boston, who first described this bruit in 1833—his paper was published in 1838—and S. S. Whitney (6), who wrote an article on the subject in 1843. Both these writers regarded the bruit as of pathological import, and indicative of some organic affection of the brain. Fisher states that it is a symptom of hydrocephalus, of acute inflammation (meningitis) and of cerebral abscess, and suggests that it is caused by pressure of the congested or distended brain upon the arteries at the base. Whitney goes further, and, finding it in 189 out of 225 cases of protracted and painful dentition, thinks that congestion of the brain due to dentition causes this bruit in a similar way. These

writers' observations refer chiefly to children at the age when the anterior fontanelle is still open.

Subsequent observers obtained results which did not agree either with the observations or with the conclusions of Fisher and Whitney. It became increasingly evident that the murmur was so frequently audible in children during the first three years of life that doubts were raised as to its having any pathological significance. Wirthgen (7), who found it in 22 out of 52 children, mostly under 4 years of age, thought that it was most often heard in children with strong heart-beat and vigorous carotid pulsation. With Hennig (2) he agreed that any condition diminishing the strength and vigour of a child caused the bruit to diminish or disappear—in fact, these two writers went so far as to suggest that absence of the bruit at the age when it is most commonly heard might be an indication of disease.

Later came some observations by a master observer, Henoch (3), who was much struck by the frequency of this bruit over the open fontanelle in rickets; he found it in 24 out of 33 rachitic children, and in the 9 cases in which it was not found thought that the negative observation was due only to the restlessness of the child under examination; he considered that this bruit might be of weight in the diagnosis of rickets. Like the previously-mentioned writers, Henoch seems to have regarded the open fontanelle as almost essential to the audibility of the bruit, which he says gradually disappears as the fontanelle closes, though he admits that in rare cases it may be heard at some other part of the skull when the fontanelle is closed.

Roger (5), with undisguised scepticism for the observations of those earlier writers on the subject who claimed to have detected the bruit in patients who had long passed the age of the open fontanelle, says: "*La persistance des fontanelles me paraît une condition anatomique nécessaire pour que l'oreille puisse percevoir le souffle céphalique.*" But as he himself mentions cases up to the age of 4 years, with "*fontanelle fermée,*" in whom nevertheless the bruit was heard, it is to be understood that it is only complete union and ossification of the sutures which he regards as making it impossible to hear the bruit. Nevertheless in two of his cases, aged 13 and 14 years respectively, with anæmia, he admits having heard a bruit in the one over the forehead and temple, and in the other, more generally, over "the skull"; in both these he considers the bruit to be quite different in origin from the "*souffle cephalique,*" and simply transmitted from the vessels in the neck.

Like Henoch, Roger found the cephalic bruit most frequent,

indeed, almost constant in rickets, but its occurrence in rickets he regarded as only a consequence of the anæmia which accompanies rickets. For him the cephalic bruit is an expression of anæmia and of nothing more.

My own interest was chiefly in the bruit as heard in children whose fontanelles were already closed, but incidentally I extended my observations to the younger children also, as the following table shows :

	No. of cases examined.	Cases with bruit.
Fontanelle closed	130	13
Fontanelle open	70	17

The youngest case in which I detected the bruit was 5 months old, the oldest 15½ years, but it must be added that no patient beyond this age was examined, so that I have no proof that the bruit might not be heard in older persons.

The method of examination when the fontanelle was open was by the stethoscope applied over the fontanelle; in the other group direct application of the observer's ear to the patient's ear.

It is perhaps worth pointing out that the apposition of ear to ear must be very exact, otherwise the necessary resonating cavity will not be formed and the bruit will not be heard. My House-Physician at King's College Hospital, Mr. C. B. Dansie, suggested to me a simple device which I have found useful, especially in demonstrating the bruit to others. The head end of another binaural stethoscope is used to replace the chest end of the observer's stethoscope and its ear-pieces are placed in the child's ears: in this way the bruit, if present, is heard with great distinctness.

The relative frequency at different ages in the series of cases examined is seen in the accompanying table :

Age.	Cases with bruit.	No. of cases examined.
Under 6 mths.	1 (aged 5 months)	30
6 mths.—12 mths.	6	17
1—2 yrs.	10	25
2—3 yrs.	2	16
3—4 yrs.	7	19
4—5 yrs.	0	23
5—6 yrs.	0	12
6—7 yrs.	1	10

Age.	Cases with bruit.	No. of cases examined.
7-8 yrs.	1	8
8-9 yrs.	0	11
9-10 yrs.	1	8
10-11 yrs.	0	7
11-12 yrs.	0	5
12-13 yrs.	0	1
13-14 yrs.	0	3
14-15 yrs.	0	2
15-16 yrs.	1	3

It is evident that the bruit is very infrequent in children over the age of four years. It was present only in four out of 93 children between 4 and 16 years old.

Sex seems to play no part in it, as the following figures show:

Cases with Fontanelle Open.

	No. examined.	Bruit present.
Boys . . .	33	9
Girls . . .	37	8

Cases with Fontanelle Closed.

	No. examined.	Bruit present.
Boys . . .	79	6
Girls . . .	51	7

It would seem that the bruit is of similar origin in both groups of cases, for I examined several of those whose fontanelle was still open to determine whether the bruit heard at the fontanelle was also audible at the ears in these cases, and found that in 11 out of 12 cases examined as to this point the bruit was heard in both positions. It seems, therefore, reasonable to suppose that when the bruit is heard only at the ears in a child whose fontanelle has closed this is a persistence for some reason of the audibility of the bruit which is so frequent in the first two years of life. One may suppose that if these children—for instance, the girl, aged 15½ years, included above—had been examined at a year old a bruit would have been heard at the fontanelle as well as at the ears.

In character they are the same: a systolic blowing, sometimes almost twanging bruit, clearly, I think, of arterial origin, and very

different from the continuous hum of a venous bruit. I have no theory to offer of the production of this murmur. It is certainly not conveyed either from the heart or from the vessels of the neck. I have particularly examined several children with loud cardiac murmurs, some of congenital and some of rheumatic origin, and found the cephalic murmurs to be entirely absent in most of these; I have also observed that in a case where there was a loud, continuous, venous bruit in the neck, the bruit heard at the ears was entirely different in character, being sharply systolic. It seems possible that the tortuosity of the carotids at the base of the skull may be a factor, and that just as with growth in length of the infant the colon gradually becomes relatively shorter and therefore less subject to sharp turns and kinks, so there may be some slight straightening of the course of the carotid with increasing size of the skull. The persistence of audibility beyond the usual age may, I would suggest, be related to unusual thinness of the bony wall of the carotid canal, which occurs as a peculiarity in some individuals. I have been entirely unable to connect the cephalic bruit with any particular morbid condition; amongst the 30 cases in which I detected it all sorts of diseases were represented—scurvy, epilepsy, achondroplasia, nephritis, asthma, congenital syphilis, congenital heart disease, acidosis, dyspepsia, and four with nothing at all. Amongst those in which it was absent were three Mongols and two cases of hydrocephalus; and rickets did not figure with any special frequency amongst my cases, but as they were mostly children of the well-to-do classes and so but little affected with rickets, this does not disprove the observations of others that a large proportion of rickety children show this bruit. Anæmia was by no means a constant feature.

Judging from the case described at the beginning of this article, as well as from two others in which the child was conscious of the noise in the head, I am inclined to think that the bruit is only heard by the child when the external ear is closed so as to form a resonating cavity; the boy above-mentioned, when asked if he still heard the noise, at once covered his ear with the palm of his hand and listened, and a similar result would occur with the ear lying pressed upon the pillow at night; indeed many persons are conscious of pulsation in the head when lying with the ear pressed upon a pillow. This simple thudding sound of pulsation is, however, quite distinct from the cephalic bruit, which in some cases is almost musical. One little boy, when I showed him how to hear the bruit by placing his palm over his ears, said it sounded "like the wind in the trees"; in

one case I have noted the murmur as sounding like "wind blowing through a keyhole."

As I have already implied, the cephalic bruit is of no serious import, but it is at least useful to know of its occurrence and of its innocence.

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LEUCOSARCOMA, LYMPHOSARCOMA, LYMPHADENOMA, AND INFECTIOUS MONONUCLEOSIS.

By F. PARKES WEBER, M.A., M.D., F.R.C.P.

THE term "leucosarcoma," introduced by Carl Sternberg (1) about 1905, includes sarcoma-like neoplasms associated with a leukæmic blood-picture, characterised by excess of large "lymphoid cells," such as are met with in cases of acute leukæmia. These large undifferentiated mononuclear cells can be regarded as pre-myelocytes or myeloblasts, or else as pre-lymphocytes or lymphoblasts. Under this heading of leucosarcoma or "leucosarcomatosis" cases of chloroma may be included as a subdivision; but perhaps the most typical examples are those of *mediastinal leucosarcomatosis*, in which there is an invasive tumour-like mass in the mediastinum, often apparently originating in the remnant of the thymus gland and tending to grow downwards over the pericardial sac.(2)

A case of mediastinal leucosarcomatosis, which I was able to diagnose during life, was that of a boy, aged 7 years, described by me in 1919.(3) The boy had enjoyed good health till the winter of 1917-1918, when he suffered from troublesome coughing. During the two months previous to admission to hospital (May the 11th,

1918) increasing pallor had been observed. In the hospital there was œdema, moderate ascites and great pallor. The liver and spleen were enlarged. There was moderate discrete enlargement of the superficial lymphatic glands in the neck, axillæ and groins. In the left eye was a retinal hæmorrhage, and there were scattered cutaneous petechiæ, especially on the lower extremities. These, together with the glandular enlargement, suggested an examination of the child's blood, which revealed the presence of (doubtless acute) myeloid or myeloblastic leukæmia. There was considerable dulness to percussion over the upper part of the chest (sternum and adjoining parts on both sides of the sternum), and a Röntgen skiagraph of the thorax showed great shadowing in that region, suggesting the presence of a tumour-like mass in the upper mediastinum above the heart. Death occurred on May the 19th, eight days after admission. The necropsy showed the presence of a large, firm, white, tumour-like mass occupying the mediastinum above the heart and pericardial sac. The tumour seemed by its position to have grown from the thymus gland, and microscopic examination showed it to consist chiefly of leukæmic cells, apparently of myeloblastic type. A special point of interest in the case was the presence of myeloid tissue in the hilus of each kidney.

Harrison and McKelvey (4), in their account of "A Case of Mediastinal Tumour associated with Acute Leukæmia," remark that Sternberg distinguished mediastinal leucosarcomatosis (of which their case was an example) from cases of lymphatic leukæmia with increase of cells of the small lymphocyte type and hypertrophy of the lymphatic apparatus and lymphocytic infiltration of the various organs. They add that Fraenkel thought that leucosarcomatosis was merely a variety of leukæmia in which there was a tendency to the formation of tumour-like masses of cells having the appearance of malignant growths. This, I think, was the prevailing opinion.

Quite recently, L. T. Webster (5), of the Department of Pathology, Johns Hopkins University, has analysed 123 cases of "Lymphosarcoma, Lymphatic Leukæmia, Leucosarcoma and Hodgkin's Disease," chiefly from the material of the Johns Hopkins Hospital (some described in full, with complete pathological accounts), but including several cases extracted from the scattered literature of the subject. He regards lymphadenoma or Hodgkin's disease as a distinct entity, a proliferative process of the reticulo-endothelial elements of the lymphadenoid tissue—to be distinguished from leucosarcoma, lymphosarcoma and lymphatic leukæmia, which are proliferative processes of mononuclear cells of the white blood-cell class. He further

comes to the conclusion that leucosarcoma, lymphosarcoma and lymphatic leukæmia are different manifestations of the same disease—a disease which, according to him, is not a neoplasm, but a direct response on the part of lymphoid cells to a chemotactic influence exerted by the disease-causing agent. The presence of this agent or substance in any tissue or organ of the body produces, according to his theory, a local accumulation of lymphoid cells in that situation. A localised “lymphosarcoma” (associated with an “aleukæmic” blood-picture) might thus, under certain conditions, become generalised and associated with a blood picture of lymphoid leukæmia, and so might terminate as a case of leucosarcoma (Sternberg), which may be described as combining the features of lymphosarcoma and lymphatic leukæmia.

According to Webster the diagnosis and prognosis of the disease in its early stage may be very difficult. A “biopsy,” with microscopical examination of an excised gland, can be made, but the microscopical appearances of a single gland may unfortunately resemble those found in certain types of benign lymphadenitis, accompanied by a transient so-called “infectious mononucleosis” in the circulating blood—a blood-picture which naturally suggests the presence of true lymphatic leukæmia. Evidence of amœboid activity on the part of the lymphoid cells is, he thinks, indicative of a rapidly fatal course.

In this connection I will shortly allude to the occasional danger of mistaking a lymphocytosis for lymphatic leukæmia. R. C. Cabot (6) called attention to this danger in a paper on “The Lymphocytosis of Infection” in 1913. His cases were of wound sepsis, boils and tonsillar adenitis; at least some of the cases, though connected with a streptococcal infection, might at first sight, owing to the blood picture, have been confused with lymphatic leukæmia. Fritz Marchand (7) in 1913 published a long article with elaborate references to the literature of the subject on “Unusually Great Lymphocytosis following Infection.” In the same year, by the way, a paper by R. von Hoesslin (8) appeared on “Lymphocytosis in Asthenic and Neuropathic Individuals and its Clinical Significance”; and in 1916 C. Moewes (9) wrote on “Chronic Lymphocytosis in the Blood-picture as a Sign of Constitutional Weakness.” Very interesting was A. J. Hall’s (10) “Case resembling Acute Lymphatic Leukæmia, ending in Complete Recovery,” in the discussion on which at the Medical Section of the Royal Society of Medicine I was able to take part. (11) In 1918 Rudolf Deussing (12) wrote on “Diphtheria-like Sore Throats with Lymphatic Reaction,” and

referred to Cabot's and other previous writings. Of considerable importance is the paper by T. P. Sprunt and F. A. Evans (13) on "Mononuclear Leucocytosis in Relation to Acute Infections (Infectious Mononucleosis)," in which the writers also review the literature of the subject, and draw attention to the suggestion of some hæmatologists that a transient leukæmia may possibly occur, from which the patient recovers spontaneously. Lymphocytosis has been noted in "glandular fever." (14) W. A. Bloedorn and J. E. Houghton (15) (Annapolis, Maryland) have described cases of what they call "Acute Benign Lymphoblastosis." The lymphatic glands, particularly of the cervical and submaxillary regions, and sometimes the spleen, were enlarged, mostly after infection of the tonsils or upper respiratory tract. All their four patients (young adults) recovered.

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THE NERVOUS CHILD.*

By CHARLES W. BARE, M.D.

NEUROTIC children may be divided into two great classes: in one, the unrestrained emotional type; in the other, the restrained emotional type. In the first, intellectual power may be, indeed usually is, above the average, but emotionally the child is a bundle

* A paper read before the Philadelphia Pediatric Society on April the 12th, 1921.

of contradictions. The young victim of a despotic nervous organisation is imaginative, often superstitious, high-spirited but timid, worried by trifles, vain, feels he is unappreciated, craves sympathy, has no idea of what discipline means, learns quickly but instantly forgets, works feverishly for a short time and then idles for days, suffers remorse but repeats the offence, affectionate, but his love is selfish. Physically such children are thin and slimly built, suffer from night-terrors and migraine; occasionally they are sickly and physically weak, and have poor vasomotor balance. As Guthrie says, many of them eventually become the main-stay of "rest houses"; a few attain great success in art. They, and especially the sickly, feed the army of the hysterics and neurasthenics in mature life. Insanity often closes the long melodrama.

Children of the second type have strong emotions, but try to hide all signs of feeling. They are observant and intelligent, but so reticent that they are often thought to be dull, sullen and obstinate. They are sensitive, shy and proud. They yearn for affection but are too shy to show it, they brood over imaginary slights, they misinterpret the conduct of others, and being suspicious, are unresponsive to overtures. They are solitary, introspective, have occasional outbursts of anger, phobias, pass through periods of religious experiences and possess no sense of humour. They are prone at the best to become incurable sexual neurasthenics, hypochondriacs, mischief-making spinsters, or cross-grained and useless old bachelors; at the worst they may become delusional lunatics and may murder supposed persecutors. Few of them attain distinction in any work worth while, though they may in manhood be industrious in a commonplace way.

Many children of both types show at times some physical sign of nervous disease. They are prone to be peevish infants, to have outbursts of infantile anger without physical cause; at seven to ten years they may develop tics (so called habit-spasms). They are sometimes spasmophilics, prone to diseases characterised by spasms; cyclical vomiting and asthma are very common. On a mixed diet their likes and dislikes for certain foods are marked, and finding food suited to them is a serious problem. Because of peculiarities in their bodily chemistry they crave certain articles, and since all sensory stimuli cause in them an associated emotional tone much stronger than in the average child, the colour, smell, consistency and general appearance of anything offered them to eat causes much more pleasure or disgust than in the healthy youngster who cares only for taste and smell. They are often stammerers.

Children of both types are victims of an abnormality in personality; their disease is one of personality. They present three problems for study: On what does personality depend? What are the causes of abnormality of personality? What can be done to make the abnormal personality normal? Personality is the thing which differentiates every human being psychologically from all others; it is the sum of his intellectual ability, his moral sense, and his emotions. Scientifically, personality depends upon the individual peculiarities of the anatomical make-up and physiological working of the human machine; it is the result of the working and interworking of all the organs and systems of the body. The brain is the great organ of thought and feeling, but it can be so hurt by failure of other organs as to be thrown out of gear and made to function abnormally, though every disorder of mental function does not alter personality. The acute infectious diseases of infancy and childhood do not cause the nervous child. When they affect the brain permanently they cause idiocy or imbecility, or aphasia with hemiplegia. Acute infantile mania, which is more frequent than is commonly supposed, leads to a complete mental breakdown—not an alteration of personality, but its destruction, very early in life. The causes of the condition under discussion do not result in visible and gross destruction of brain-tissue with a corresponding abolition of function, but in perversion of function without discoverable lesions. It is not brought on by accident, prenatal disease, nor by environment, but by bad inheritance.

The fundamental factor in the formation of personality is heredity. What happens to any one stream in the human branch of the river of life (any one family) whereby new potentialities whether for evil or good arise, we do not know. We do know that characteristics acquired by the individual from without are not carried over, whether they be physical or mental. The king born with a sneak-thief's personality but never becoming a sneak-thief, because a king does not need to indulge in petty crime, will probably have a son like himself, unless inheritance be wholly from the mother, no matter what care may have been exercised in choosing the child's environment and in guiding his education. On the other hand, at times there may appear in an ordinary and commonplace family a child whose personality differs entirely from its forbears.

I do not mean those cases in which parental disease (like syphilis) infects the offspring and causes blight, nor accidents or injury to the brain at birth which may produce physical disease or mental defect, but cases in which seemingly healthy but ordinary parents conceive

a child who is a genius or a born criminal, or one of these nervous children we are discussing. There must surely be a physical cause: the explanation may be and it probably is, that while in each parent each system (brain, blood-vessels, endocrine glands and the rest) is adapted to the others, in the offspring, the combination of systems, their interrelation is bad. Knowledge at the moment seems to indicate that certain of the endocrine glands have much influence on personality. Certainly disease of the thyroid may cause mental and emotional symptoms.

The nervous child of the first type may become a great poet, musician, even having creative art, rarely a painter or sculptor. In short, he may become a great artist, but he never can become a great administrator, a great man of affairs, statesman, general, or leader among business men, or a philosophic man of science; but he may become a religious leader, especially in the ranks of heresy, schism, or false doctrine. When made on a smaller scale he may grow into a sincere Bolshevik or uplifting sociologist.

No one can draw a line and say that on the one side are all the normal and on the other the abnormal—the nervous. There is no clear-cut boundary between the healthy and the diseased, nor between the different types of disease. All types of men merge into each other. The personality may, because of inherited tendencies, be so warped and twisted that we can do nothing, or the inherent tendency towards health may be strong enough to win out, if the child be wisely managed. Our frequent error is to mistake the unbalance many boys have at puberty for degeneracy.

The treatment of the nervous child is important because he is often the starting-point of degeneracy in a family, and because much of the world's higher work in things above the material has been done by people who were certainly nervous children. It may be when we come to really know something about biological chemistry and the endocrine system in the distant future, we may be able to stabilise the emotional side of these children by medication. As nervousness depends upon emotional instability, lack of inhibition, absence of will, and enslavement to impulse, the one object of treatment is to strengthen the will, and dethrone the tyrant impulse. First, parents must change their attitude toward life, and re-learn the lesson that inhibition is the one thing in training children. Second, we must cast aside the false doctrine that to save a boy you must remove all temptation. He must be made strong to fight the battle against evil. Realise that hiding nasty truths does not make them untrue or abolish them, but that work is the one thing worth while.

Our system of trying to make education universal is fundamentally wrong because it is wasteful to prodigality; many children are incompetent to take in anything beyond the merest fundamentals, and both public money and their time are wasted in trying to make bookish people of them. Money that should be spent on intellectual boys is wasted on children whom Nature intended should work only with their hands. To hold them in school does them much harm: they want to work; the years of idleness at school destroy that desire and they become lazy. The one thing to make a boy a man is to teach him self-control, a love of truth, and a desire to work. These are important, vital things. Fortunately Nature often helps by giving the child a strong healthy potentiality to health to overcome the evil potentiality. The nervous child's anatomical apparatus should be kept in good condition, and if there be any defects therein they should be corrected or removed, but we must not expect miracles by the removal of so-called reflex causes of disease.

A CASE OF RENAL DWARFISM WITH BONY CHANGES.*

By DONALD PATERSON, M.B., M.R.C.P.,

Medical Registrar, Hospital for Sick Children, Great Ormond Street.

THE patient, a female child, aged $4\frac{1}{2}$ years, was admitted to the Hospital for Sick Children, Great Ormond Street, under Dr. Robert Hutchison on October the 19th, 1921. She had been brought to hospital because she was not getting on, and because of her deformities. She was a full-term child, and at birth it was noticed that her hands and feet were deformed by a twisting at the wrists and ankles. Her birth weight was 5 lb. She was fed on the breast until she was a year old and then on a dried food, she refused all solid food, she spoke at 18 months, sat up at 2 years but never attempted to stand. She had always been very constipated, her bowels failing to move sometimes for a week at a time. The only illness that the child has had was measles at $2\frac{1}{2}$ years. The family history shows the mother and father alive and well, and two other children alive and well. There was one miscarriage after the birth of this child. *The Wassermann reaction was negative.*

On examination the child is seen to be pale. She has a large

* This case was shown before the Section for the Study of Disease in Children of the Royal Society of Medicine on October the 27th, 1921.

head for the size of her body. Her forehead is prominent, and her fontanelle measures 1 in. by $\frac{3}{4}$ in. Her intelligence is that of a child of two years. The eyelids contain small granular bodies. There are four lower and three upper incisors. The thorax is long and narrow with marked beading of the ribs, the clavicles showing exaggerated curves and Harrison's sulcus being well marked. The abdomen is full, and the liver is palpable one finger's breadth below the costal margin. The spleen and kidneys are not palpable. The



respiratory and nervous systems are normal. The circulatory system shows the following abnormalities: The blood-pressure is 95 mm. of mercury, and the radial artery seems definitely thickened beneath the finger. The vessels in the temporal region are prominent. The heart-sounds are rapid and forceful but no definite hypertrophy of the heart can be made out. Blood urea 108 mgm. per cent., normal 10 to 30.

Urine.—Specific gravity 1006–1008; pale in colour, acid; definite cloud of albumen. A few red corpuscles and pus-cells; no casts seen. Urea 1 per cent. The quantity could not be measured but we think there is polyuria.

The total length of the child is $22\frac{1}{2}$ in.

Limbs.—There is defective movement at the shoulder, elbow- and knee-joints. There is thickening about the elbow-joint. At the wrist there is much enlargement and also at the ankle, and the hand and foot seem to be displaced toward the ulna and fibula respectively. The impression given is that the hand and foot have been dislocated outwards. The femora are bowed and the patellæ are displaced outward. Both hands and feet flex easily against the forearm and shin. The fingers and toes are long and slim.

X rays show marked osteoporosis. The lower end of the radius and ulna show faint stippling and much enlargement, with displacement of the wrist towards the ulna. The knee-joint shows separation of the epiphysis with displacement backwards of the lower fragment.

As regards the pathology of the bony condition, there is an overgrowth of the fibrous trabeculæ and a failure to lay down calcium and bone tissue in the trabeculæ, hence the marked tendency these cases have to displacement and fractures at the growing portions of the bone.

This case is remarkable in that the bony deformities date definitely from birth, while in the case which I reported nearly two years ago the deformities were not noted definitely until the child was a year old. The similarity of the two children in appearance is remarkable. The renal condition is in this case, I think, unmistakable, and the bone changes characteristic of these cases. How far these bony changes have been modified by the diet, which would tend to produce rickets, it is impossible to say. In conclusion I must thank Dr. Robert Hutchison for allowing me to show this case.

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A CASE OF MORBILLI BULLOSI.*

By EVA MORTON, M.R.C.S., L.R.C.P.

THIS disease, in which an eruption resembling pemphigus is combined with the ordinary rash of measles, has been described by various authors, but is rarely seen, the following case being therefore one of unusual interest.

* The case was reported at the Section for the Study of Disease in Children of the Royal Society of Medicine on November the 25th, 1921.

The patient was a girl, aged $7\frac{1}{2}$ years, with a history of measles two years ago and of varicella last June.

She was taken ill on September the 25th, the symptoms being headache and discharge from the eyes, but she went to school on the 26th. On the 28th a rash, described by the parents as "red pimples," developed over the trunk and limbs, which by the next day resembled that of measles, but with the lesions more raised and prominent than is usual in measles. There was a considerable semi-purulent discharge from the eyes. On the evening of the 29th, twenty-four hours after the first appearance of the rash, a bullous eruption developed, beginning on the chest but rapidly spreading in fresh crops to other parts of the body. On the 30th the patient was admitted to the Grove Hospital with a diagnosis of measles.

On admission there was a morbilliform rash over the whole of the body with the exception of the scalp and gluteal region. There were bullæ over the face, trunk and limbs, of all sizes up to an inch or more in diameter, many of which had ruptured, leaving the epidermis wrinkled and hanging in shreds, exposing deep red patches of true skin. The eyes were swollen, and the eyelids, completely denuded of skin, were stuck together. The lips were swollen, cracked and dry. The temperature on admission was 101°F ., and the pulse 140. Rhonchi were heard over both lungs, and there was dulness at the right base, but the respiratory symptoms were slight. The heart-sounds were normal.

Next day, October the 1st, the bullous condition had extended on to the scalp and gluteal region, and the whole of the epidermis appeared to be loosened, peeling off very easily. Attempts were made to obtain blood for examination, but serum alone was exuded at each puncture, and the attempt was given up, the child being practically moribund. The urine contained albumin but was otherwise normal, the diazo reaction also being negative. The patient was semi-conscious and became very restless during the day, the pulse rising to 240, and thirty hours after admission she died.

A post-mortem examination was made, but apart from a bronchopneumonic condition of the right lung the viscera were healthy.

The diagnosis at first appeared to lie between acute pemphigus and measles complicated by a bullous eruption, but in view of the analogous cases reported by other observers, in which measles was clearly demonstrated by the presence of Koplik's spots or otherwise, the balance of evidence lay heavily on the side of the latter diagnosis, the only points, indeed, against it being, a history of measles two years before, the fact that a younger child of eighteen months

escaped infection although in close contact with the patient for several days, and the fact of a negative diazo reaction. With regard to the first objection, while the previous illness may well have been rubella, the possibility of two or even three attacks of true measles has been placed beyond question. Lewy reported an undoubted example of two attacks of measles in the same patient, both of which—the patient being his own son—he had an opportunity of observing. M. Salzmann collected from the literature 68 cases in which a relapse or a second attack of measles occurred, in 31 of



which both attacks had been seen by the same observer. The second objection is harder to meet, but cannot be held definitely to exclude measles, while the third objection may be disposed of by the consideration that a negative diazo reaction in a moribund case is hardly likely to have the same evidential value as would a positive reaction.

Among the other cases of measles complicated by acute pemphigus recorded in the literature are the four occurring in one family, reported by Steiner—the only such cases met with by him in over 6000 cases of measles. A girl, aged 6 years, developed a rash not typically morbilliform but diagnosed as measles, bullæ developing next day,

with fresh crops appearing for a week. Ten days later rash and bullæ had disappeared, and the patient recovered. Her brother, aged 5 years, developed measles, bullæ appearing 2 days after the rash. The illness, including the prodromal stage, lasted 19 days. A 3-year-old sister developed a prodromal punctate rash followed next day by the simultaneous appearance of a typical morbilliform rash and large bullæ on face and neck, the illness lasting 13 days. The day before the final disappearance of rash and bullæ in the first child the baby of 10 months developed a maculo-papular rash on the back, preceded by a few hours by bullæ, this case proving fatal on the seventh day.

Baginsky reports two cases of *morbilli bullosi*, one in a child aged 11 months, in which the bullæ appeared 4 days after the exanthem, and the other in a patient aged $1\frac{1}{2}$ years, in which the pemphigoid eruption, beginning on the back, developed 2 days before the morbilliform rash. In both these cases there was a positive diazo reaction, and both proved fatal.

The cases, however, bearing the closest resemblance to the one now reported are recorded by Henoch and F. C. Neff. Henoch's case was that of a girl, aged 4 years, with an apparently normal attack of measles, in whom on the third day an eruption of bullæ appeared over the whole body, varying in size from a hazel-nut to half-a-crown. Pneumonia of the right lower lobe supervened, the child dying on the eighth day. Neff's patient, a girl, aged 6 years, died on the fifth day of measles with a bullous eruption involving nearly the whole of the body surface. This he believes to be the only case of the kind observed in America.

A recent writer, Heinmüller, Assistant at the Göttingen University Children's Clinic, reporting an epidemic of 37 cases of pemphigus which occurred in Göttingen in 1915, notes that in six cases the disease was associated with measles, in five of which the attack of pemphigus occurred in the desquamating stage and in one in the prodromal stage. In this connection he points out that if the pemphigoid eruption in these and similar cases depends on the same ætiology as measles, it should be associated with a definite stage of the disease, or at least appear with some regularity. This, however, was not so, either in his own cases or in those recorded previously, while the appearance of the bullous eruption in some instances before any measles rash is presumptive evidence that the former is not merely a variation of the measles eruption. In view, moreover, of the fact that the combination of morbilli and pemphigus occurred in the course of an epidemic of pemphigus, Heinmüller is led to the

conclusion that the combination is a purely fortuitous one, and that the cases are therefore incorrectly described under the name of *morbilli bullosi* as indicating a distinct variety of measles. The point is no doubt arguable, and probably not until a larger number of cases have been observed and recorded can it be authoritatively settled.

I am indebted to Dr. J. H. Whitaker, Medical Superintendent of the Grove Hospital, for permission to publish the case, to Dr. Thomas Brushfield for the photograph, and to Dr. J. D. Rolleston for kindly referring me to the literature on the subject.

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Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, April the 22nd, 1921.

The President, Dr. FREDERICK LANGMEAD, in the Chair.

Renal Dwarfism.—Mr. C. MAX PAGE showed a girl, aged 7½ years, with an extreme degree of bony deformity resulting from displacement of the epiphyses of the femora. Skiagrams of all the long bones showed changes at the epiphyses generally regarded as characteristic of adolescent rickets. A faint cloud of albumin was sometimes found in the urine on boiling. Estimations of renal efficiency showed that the excretory power of the kidneys was very low and indicated nephritis of the chronic interstitial form.

A Case for Diagnosis.—Mr. G. S. TROWER showed a boy, aged 6 years, in whom scleroderma was distributed in patches and was especially evident on the upper part of the back and neck. Neighbouring muscles were also infiltrated and nerve contraction and relaxation were considerably interfered with. Flexion of the legs had resulted and movement was greatly hampered. There was hemiatrophy of the tongue. The general health was not seriously affected, and there had been no fever apart from that associated with an attack of tonsillitis.

In the discussion Dr. Thursfield showed a girl, aged 16 years, in whom the disease was less pronounced, and the muscles were not affected. There was, however, hemiatrophy of the tongue in this case also.

Congenital Heart Disease without Bruit.—Dr. F. LANGMEAD showed a girl, aged 2 years, who had been blue and dyspnoic since birth, and clubbing of the fingers and toes was pronounced. The case was clearly one of congenital morbus cordis, but no bruit could be heard. The diagnosis was regarded as being either that of pulmonary stenosis or of transposition of the great vessels.

Congenital Heart Disease.—Dr. W. J. PEARSON showed a female infant, aged 9 months, brought for treatment for "bronchitis." There was neither cyanosis nor clubbing. The liver reached one and a half finger-breadths below the costal margin and the spleen was palpable. The maximum cardiac impulse was in the fifth space just outside the nipple line. The area of impulse was large, and there was a marked thrust in the third and second left spaces, with a thrill in the second left space. A systolic bruit had its maximum in the pulmonary area and inner end of the second left space, and was also clearly heard at the apex.

The second sound in the pulmonary area was accentuated. A skiagram showed considerable enlargement of the heart with prolongation upwards to the left of the sternum. The diagnosis suggested was patent ductus arteriosus.

CLINICAL SECTION.

March the 11th, 1921.

Case of Osteitis Fibrosa treated by Resection of 4 in. of Humerus and Insertion of Boiled Beef-Bone Graft.—Mr. C. W. GORDON BRYAN showed a girl, aged 10 years 9 months, in whom he had used this method, for which he claimed the following advantages: (1) It was not necessary to interfere with another of the patient's bones in order to obtain a graft. (2) The beef graft was much stronger than any autogenous graft that could have been used, and the function of the arm was fully restored in seven weeks; from that time the limb had been used normally. (3) The avoidance of prolonged immobilisation allowed the muscles and joints to recover their functions very rapidly, and after-treatment by massage, etc., was reduced to a minimum.

Case of Parovarian Cyst in a Baby, aged 3 months.—Mr. W. H. OGILVIE.—The infant had been ailing since birth, and had been treated for marasmus. After admission to hospital for broncho-pneumonia a lump was noticed in the abdomen, which was very distended and tympanitic. In the left lower quadrant was a large globular elastic swelling, dull to percussion, giving the sensation of fluid and only slightly moveable; the lower border could be felt *per rectum*. The idea of an ovarian tumour was suggested by the presence of two congenital abnormalities—a large rugose vulva like a cleft scrotum, and a partial stricture at the recto-anal junction. The previous child had been born with a hare-lip. The fixity of the mass, however, and the distension of the intestines led to the diagnosis of an inflammatory

exudate shut off between coils of intestine. Under chloroform anæsthesia a right paramedian incision was made. Greatly distended coils of gut presented, and free serous fluid was found in the peritoneal cavity. A globular swelling about 4 in. in diameter was then exposed. As it could not be delivered it was punctured with a trocar, and about 12 oz. of golden-yellow fluid evacuated. The flaccid cyst was then drawn out, its narrow pedicle clamped, divided and tied off, and the abdomen closed. The operation lasted only fifteen minutes. Recovery took place. Microscopical examination of the cyst showed a well-developed parovarium in its wall. Mr. Ogilvie stated that the chief interest lay in the rarity of the case, no example of parovarian cyst having been previously recorded in a baby.

Enlarged Spleen: Case for Diagnosis.—Dr. BERNARD MYERS showed a girl, aged 13 years, whose spleen and liver were increased in size, the spleen extending to 1 in. below the umbilicus. Banti's disease seemed to be negatived by the absence of hæmatemesis and ascites and by the leucocyte count. The leukæmias were excluded by the blood examination and the history. The diagnosis of acholuric jaundice, a tuberculous process and Hanot's cirrhosis was also rejected. The condition was probably syphilitic, as slight improvement took place under specific treatment. The Wassermann reaction performed by the pathologist was doubly positive, and negative when performed by two others within a few weeks of one another.

SECTION OF DERMATOLOGY.

March the 17th, 1921.

Case of Monilithrix.—Dr. W. KNOWSLEY SIBLEY showed a girl, aged 5 years, the youngest of three. There was no other known case in the family of hair trouble. At birth the hair was dark brown and normal in appearance. At one month old it all came out and had never grown properly since. The hair of the head had a fair, flaxen, tow-like, bushy appearance, being 1 to 2 in. long on the vertex of the scalp, but only $\frac{1}{8}$ to $\frac{1}{4}$ in. in length over the occipital, parietal and margin of the frontal regions. The hairs were very brittle, and readily broke off at various lengths with slight friction. The eyebrows, especially the outer parts, were very deficient, and the hairs presented the same microscopical appearances as those of the head. The eyelashes were very dark and rather short and very curved. They did not present any of the monilithrix structural appearance. The whole scalp was dry and presented the appearance of keratosis pilaris, and that condition was also present on the arms and thighs. The teeth were well preserved, rather small, with considerable spaces between all the incisors and canines.

Case of Lupus Erythematosus (Juvenilis).—Dr. W. J. O'DONOVAN showed a boy, aged 8 years, who in June, 1920, was noticed to have a rash below the left eye which had been treated as eczema. The general health was good, there was no history of any infection except measles in early childhood, there was no albuminuria, no adenitis and no chilblains; on both cheeks and on the nose were numerous discrete discoid patches of lupus erythematosus. The extreme youth of the patient was the reason for his being shown.

April the 21st, 1921.

Case of Granuloma Annulare.—Dr. E. G. GRAHAM LITTLE showed a boy, aged 12 years. The lesions on the left hand were good examples of early granuloma annulare, and showed the pearly, isolated, sago-like lesions arranged in a ring. Dr. Little agreed with Darier in holding that the disease had tuberculous associations. In the present case the condition had persisted for nine or ten months; it was not involuting in any way but was inclined to appear in fresh patches on the knuckles of the left hand, those of the right hand having been first affected.

A Condition somewhat resembling Lupus Pernio in a Child.—Dr. PARKES WEBER showed a boy, aged $2\frac{1}{2}$ years, who had previously been exhibited by Dr. Cockayne as a case of sclerodactylia (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1920, xvii, p. 93). He had at first agreed with this diagnosis, but afterwards, in spite of the patients' early age, he thought it was allied to lupus erythematosus, and Dr. Adamson suggested that it more nearly resembled lupus pernio.

May the 19th, 1921.

Case of Adenoma Sebaceum.—Dr. E. G. GRAHAM LITTLE showed a girl, aged 13 years, who had had the eruption since early childhood, and at present the characteristic semi-translucent small tumours were thickly distributed about the cheeks, in the sulcus between the cheek and nose, and on the nose. The majority of the lesions were of the red type (type Pringle), but there were also some quite pale tumours (Balzer's type). In addition there were several soft, fibrous, pad-like colourless patches on the skin over the sacrum. The child was a particularly bright, clean and successful student; there were three other children who were normal.

Case of Congenital Hypertrichosis.—Dr. J. H. SEQUEIRA showed a girl, aged $2\frac{1}{2}$ years, the youngest of five. The older children had no abnormality. The child was born at full term, the first teeth appeared at 8 months, and she walked at 18 months. The face was covered with fine downy hair, chiefly fair, in some parts $\frac{1}{4}$ in. in length. The body was covered with longer, darker hair, and there was a similar growth on the limbs. The palms and soles and the flexures were free. In 1909 Dr. Sequeira had shown a similar case.

Case of Epidermolysis Bullosa.—Dr. H. W. BARBER.—The patient was a boy, aged 9 years. Twenty-two affected members of the family had been traced. In the present generation two boys and two girls were affected, and the disease had been transmitted to them by the father, from whom it went back to the grandmother's father.

SECTION OF LARYNGOLOGY.

June the 3rd, 1921.

Foreign Body (Collar-Stud) in the Œsophagus of an Infant, causing Spinal Osteomyelitis and Death.—Dr. DOUGLAS GUTHRIE.—A previously healthy infant, aged 9 months, with no history of foreign body

was admitted to hospital presumably suffering from broncho-pneumonia. For a few days there was improvement, but when seen by Dr. Guthrie ten days later the patient looked very ill, had a metallic cough, and the temperature was 102° F. Physical signs in the chest consisted only of a few scattered moist *râles*, and a wheezing sound audible on expiration (Jackson's sign). No difficulty in swallowing had been observed. X-ray screen examination showed a small dense shadow, slightly to the left of the middle line, at the level of the tracheal bifurcation; above this was a diffuse shadow extending towards the apex of the right lung. Whilst the larynx was being examined by direct laryngoscopy and mucus being mopped up (without an anæsthetic, general or local), the pulse and respiration suddenly ceased. Immediate tracheotomy followed by bronchoscopic insufflation was of no avail. The autopsy revealed a large bone stud in the œsophagus, just above the level of the tracheal bifurcation. The base of the stud was in the œsophagus, while the head had ulcerated through the posterior wall and projected into an abscess, the size of a walnut, which occupied the body of the third dorsal vertebra. Only a thin lamina of bone separated the abscess-cavity from the spinal canal, and at this point there was localised inflammation of the meninges. Abscess of the posterior mediastinum following a foreign body in the œsophagus was not uncommon, but Dr. Guthrie was not aware of any other case in which the vertebral column became eroded to such an extent. He thought the cause of death was shock in an emaciated child. Possibly there had been some pressure on the spinal cord, as the entire body of the third dorsal vertebra had been converted into an abscess, into which the small end of the collar-stud projected.

Philadelphia Pediatric Society.

April the 12th, 1921.

EDWARD B. HODGE, M.D., *in the Chair.*

The Origins of Fears and Obsessions in Children and their Influence in Later Life.—DR. WILLIAM DRAYTON, *jud.*, read this paper, in which he said that probably the first instinct to become manifest was that of self-preservation, and fear was the emotion that seemed to play the major rôle in connection with this instinct. As a child developed mentally he was subjected to many emotions—fear, awe, terror, shame, jealousy, anger and so on—and if any of these emotions were successfully played upon, that emotion was likely to become more or less dominant and overshadow the reaction of the other emotions: for instance, if fear were constantly called upon and unduly stressed by continual threats, that particular child would react to fear when perhaps anger or shame should be the natural response. The emotions not being evenly balanced, the child might develop the neuropathic or psychopathic constitution; this, of course, was largely in the realm of theory, but nevertheless was worthy of serious consideration.

Phobias and obsessions developed in infancy and early childhood frequently played a large part in later mental development, perhaps colouring the whole

mental life of the individual. The suffering of a victim of a phobia or dread was rarely suspected: the child would endeavour to hide his fear, as it was often accompanied by shame and the dread of ridicule from misunderstanding elders unless it became so overpowering that he must confess it. They had all seen children exhibit great fear at the crash of thunder, the bark of a dog, the howling of the wind, the splash of rain against the roof or window, the morbid fears of snakes, insects, cats and dogs, and they had heard parents and nurses laugh at these childish fears and ridicule them, or punish them for what parents considered acts of cowardice; but rarely did they see parents and nurses try to discover the causes of these fears and explain them away in a rational manner. The result was that some of these phobias persisted through life and caused great misery to the individual. He cited many cases showing that the fears, dreads or obsessions began from origins developed in childhood, and urged those dealing with children to help prevent the development of these fear processes. Dr. Drayton felt that the best way to accomplish this was by educating the medical student along psychological lines, so that when the time came he would be better fitted to instruct parents, nurses and caretakers not to threaten children with fears, nor to play upon their jealousy, shame or other emotions; furthermore, by careful and painstaking study of childish fears and dreads, by gaining the child's confidence and never ridiculing his fears or doubts, they could try to determine their origin, then by explaining to the child just why he or she was terrified help him or her to overcome their terror. After the patient realised how his suffering had been caused nothing was more satisfactory than to see the phobia disappear, as it almost always did when the true cause was found and explained to the sufferer.

Psychoses and Potential Psychoses in Childhood.—Dr. EDWARD A. STRECKER called attention to the extreme rarity of true mental disease in children. In reviewing 5000 consecutive hospital admissions, only eighteen instances of undoubted psychoses in children under the age of fifteen years were found. Ten were girls and eight were boys. The type of mental disease was doubtful in four, in ten the final diagnosis was manic-depressive psychosis. In seven of these the depressive element was more pronounced and in only one was there frank mania. He did not include post-infectious mental disease, juvenile paresis, psychoses in epileptics and mentally defectives, psychoneurotics or constitutional psychopaths. Dementia præcox was carefully searched for and only four examples were found. This disease had its greatest incidence at puberty or soon thereafter, and many endocrine anomalies and disorders had been noted in the fully developed and chronic stages of the psychosis, which would seem to indicate a clue too significant to be overlooked in future attempts to uncover hidden aetiology. The ages of incidence in the manic-depressive group were as follows: one at ten, three at twelve, one at thirteen and five at fourteen. In dementia præcox the age at onset was eleven and fourteen in the male children and eleven and thirteen in the females.

He cited one case of dementia præcox in which the patient's heredity was heavily charged. The father had melancholia, and a paternal uncle and cousin were mentally sick during the greater part of their lives. The child was bright and precocious. Coincident with the establishment of the menses at thirteen she became irritable, seclusive, depressed, and made two dramatically planned attempts to end her life. A brief remission was followed by rapidly progressing and final deep dementia. There were hallucinations of

hearing, silliness, vague ideas of reference, delusions of persecution, untidiness, and frequent outbreaks of catatonic excitement, during which she blindly and desperately attempted to injure everyone in her vicinity. At the present time in the fourteenth year of the disease at the age of twenty-seven she was hopelessly demented.

Dr. Strecker said that the symptomatology of mental disease was relatively more simple in children than in adults. In the manic-depressive group the depression was often nothing more than an elementary emotional reaction, or else it was supported by vague and trivial delusional formation. In only one patient was the idea of personal wrong-doing and self-depreciation expressed comprehensively and more or less logically. The psycho-motor activity was seemingly more motor than psychic, and the distractability and the flight of ideas was apparently closely related to the contents of the environment. Mental confusion occurred frequently. In dementia præcox delusions were usually of uncomplicated construction. The more complex differentiation of the central nervous system was the final acquisition of the child. A structure or an organ which had not reached its maximum growth was unable to respond by complete functional expression to either physiological stimulation or pathological irritation. Among primitive races mental disease, especially dementia præcox, was uniformly simple in its clinical expression.

Between 10 and 30 per cent. of psychoses in children were due to acute infectious and contagious diseases, especially the exanthemata, mental episodes having been reported after scarlet fever diphtheria and such diseases. During the course of the acute illness a varying grade of delirium might be expected, and subsequently an unmotivated excitement or depression with considerable confusion often without hallucinations and delusions. After epidemic encephalitis children became impulsive, and showed purposeless motor acts, marked irritability, attention disorders, distractability, an inconsistent, variable and unstable emotional reaction, marked insomnia, and occasionally intense eroticism and precocious sexual feelings.

To judge from the case-histories of adults with mental disease, there was often in childhood a predisposition which was expressed in terms of abnormal "make-up." He described the "shut-in" type of personality not uncommonly met in children. These children, as Dr. Burr once aptly wrote, were a curious combination of child and adult; intellectually they were often precocious, they were not boisterous, vivacious nor unduly inquisitive, but showed a passive resistance to their environment. They did not enjoy play with other children, were much alone, did not confide their thoughts to others—not even to their parents. They were unduly sensitive, often absent-minded and dreamy. On such a basis they might develop seclusiveness and gradual withdrawal from practically all human contacts. This was essentially dementia præcox, the pre-eminent psychosis of adolescence. Some children showed an undue amount of emotional instability, often with pronounced moodiness and sulkiness. There were some intellectual children who presented almost constant and uncontrollable motor restlessness, which, if accompanied by corresponding mental hyper-activity, would be equivalent to true mania.

The pædiatrician had the unusual opportunity of studying and sometimes controlling the environmental factors of childhood. In the early years of life there was an effort on the part of the child to dominate its immediate surroundings. When the path of least resistance was followed by the

parents the outcome was a spoiled child. When the opposite extreme method was used they might expect a repressed child with a crushed spirit, either vindictive or lacking in initiative and courage; what was needed was a reasonable, middle-of-the-road course. Childish curiosity, and especially their sexual curiosity, needed to be taken seriously. If denied by the parents or physicians, the desired information would soon be supplied by questionable sources which might prove highly dangerous. Children were individuals with their own point of view, and the adult conception might be totally inexplicable and seemingly inadequate to their youthful minds. Certain traits needed to be encouraged and others discouraged, if the child was to reach the apex of its inherited and developmental possibilities.

The Nervous Child.—Dr. CHARLES W. BARR (*vide* p. 182).

May the 10th, 1921.

EDWARD B. HODGE, M.D., *in the Chair.*

Medical Supervision of the Destitute Child.—Dr. MAYNARD LADD, of Boston, described the method employed in Boston for managing the problem of the destitute child. He gave substantial evidence that the medical supervision of the boarded-out child must be one of the first and most important considerations of any child-placing associations.

Dr. Ladd said that five years ago Mr. J. Prentice Murphy, who was then Secretary of the Boston Children's Aid Society, came to the conclusion that the medical supervision of the children boarded out by the Society was in many ways inadequate. In short the social end of the job was scientifically and efficiently managed, but the medical supervision of the children from a physician's point of view was very inadequate, if not actually bad. The problem which had to be worked out was how to establish an organisation which would assume the medical supervision of the children, correlate the social end of the job and provide proper hospital facilities for those who became seriously ill. The expense of such an organisation was of primary importance. The only solution appeared to be in utilising the facilities of a large hospital, and so to arrange the work that it would not conflict with its regular service. Thanks to the co-operation and spirit of Mr. Michael M. Davis, then Director, the Boston Dispensary was selected for the experiment, and the Chief of the Children's Department assumed the medical directorship of the Boston Children's Aid Society and of The Church Home Society. This arrangement had obvious advantages. It centralised the medical care under one responsible head, who by virtue of his connection with the dispensary was able to secure the co-operation of the different departments. Quarters were set aside for a preventive clinic with its own corps of workers. The facilities of the clinical laboratory, the X-ray laboratory and the special departments, such as the eye, ear, nose and throat, gynaecological and orthopaedic, were made available without prohibitive overhead expense. The hospital became the natural centre for seriously ill children, thus relieving the foster-mothers and social visitors of responsibilities they should not be forced to assume. In care of contagious diseases the special hospitals were utilised, but their co-operation was more easily obtained from an organised department of the dispensary than by the individual efforts of the agencies, and it not infrequently happened that their favours were returned when they had to face the problem of providing for a convalescent child.

The general offices of the two children's societies were located outside of the dispensary building and were concerned with social, financial and administrative details of their work. With them rested the selection of cases, the study and social diagnosis of families, the preparation of histories of children received, the selection of foster homes, the supervision and training of foster parents, the selection and training of non-medical workers, the social case work supervision of the medical workers, the provision and distribution of special foods, and so on, which as a result of their own observation or that of the medical director were found to be necessary. The general current of all social case-work of these two societies was determined by the advice and counsel of the medical director, who practically determined the final disposition of the children.

The preventive clinic at the dispensary was under the control of the medical director of the two societies, whose duties were those of a consultant, and who also directed, as his particular charge, the feeding of infants and under-nourished children. The routine examinations and home visits were largely made by a full-time physician—at present Dr. Leslie H. Macmillan. Her mornings were spent at the dispensary making first examinations and re-examinations; her afternoons in visiting children in their homes who had been reported ill by the visiting nurse or social worker, but not ill enough to necessitate hospital care. Both societies had trained graduate registered nurses for the medical social supervision and training of all their children under the age of three.

Notes on all examinations were made in triplicate. One copy went to the society responsible for the child, one to the dispensary general files for the benefit of other clinics, and the third was kept on file in the preventive clinic office. The central office was thus informed automatically of everything that transpired in the hospital clinics. The assistant physician visited each home every month or two and represented a definite medical survey, and resulted in information of great importance for the social case-workers who were operating from the offices of the respective societies. All cases of illness were immediately reported to the central office from which the child was placed. The office then promptly notified the director or his assistant.

The Boston Children's Aid Society had constantly 60 to 100 infants under its care, and a smaller number in the care of the Church Home Society. Very few of these babies had mothers to nurse them and they required experience and judgment in the matter of substitute feeding. Following the initial examination at the time of acceptance, the details of the child's feeding were carefully formulated. The nurse visited each home once or twice each week, examined and weighed the baby, plotted its weight curve on a chart, detailed the hygiene and preparation of the feedings with the foster-mother. Once a week the nurses met the director in conference. Each case was carefully reviewed and changes made in food and the nurse instructed in the principles underlying the changes. The foster-mothers were always in telephone communication with the nurses. Any unfavourable symptom was reported and the nurse visited the child, gave instructions herself to the foster-mother if the condition was not serious; otherwise she reported the case to the assistant physician, who visited the child. If in her judgment it was necessary she reported to the director, and he either prescribed treatment or ordered the child to the clinic for examination, or arranged for its admission to the hospital. The results of this close supervision were seen in the low mortality-rate, and in the almost normal development of the babies, even though bottle-fed. The educational value of such a

system of supervision upon the foster-mothers, the social worker, nurse and doctor was very valuable, and pointed the way by which large groups of destitute babies could be successfully reared without institutional care, with minimum expense, and with a comparatively simple organisation.

Dr. Ladd showed many interesting slides, two of which were especially interesting. One showed the total number of individual patients carried in the four-year period from 1916-1920 was 1127, representing about 530 cases carried each year. The total number of deaths in the four years was 24—an average of 6 deaths per year. This represented a mortality of 2.12 per cent. for a yearly average of 282 new patients, or 1.13 per cent. for an average of 530 patients carried each year. The children ranged from birth to sixteen years of age.

The other slide showed the mortality by age for the four-year period.

				Mortality.	
Birth to 1 year . . .	302 cases	9 deaths		3.0	per cent.
1 to 2 years . . .	157 "	9 "		5.7	"
2 " 5 " (incl.) . . .	336 "	3 "		0.9	"
6 " 10 " " . . .	336 "	0 "		0.0	"
11 " 16 " " . . .	290 "	3 "		1.0	"

The Social Significance of Medical Work for Dependent and Neglected Children.—Mr. J. PRENTICE MURPHY, Secretary of the Philadelphia Children's Bureau, said that approximately 50,000 children received some form of foster care in Pennsylvania each year. The average in such care for the whole United States was about 200,000 children, with approximately 500,000 children reached in some way each year.

During the administration of the late Mayor Mitchell, of New York City, an inquiry was made into the keeping given to the thousands of needy children in care of various private subsidised institutions in New York City. Although all of these institutions carried the names of physicians in their reports, the actual health work done by approximately half of the institutions was so poor as to lead to a severe condemnation by the Mayor's Committee. There were superficial examinations that revealed little besides figures for reports; the medical part of the child-caring job was purely incidental with nothing essentially preventive or constructive in its character; in some institutions children never had a properly balanced meal and were tied up with one quarantine after another, children were assigned tasks out of all proportion to their physical strength, and little was done to correct or remove physical defects and handicaps, which when once crystallised meant almost permanent dependency for the child.

In one of the largest cities in the country there was a great system of foster care for children passing through the juvenile court. These children were placed in families under the direct supervision of the court, but without adequate health oversight; the cost of their maintenance was close to \$400.00 per child per year. According to the last report, more than 700 children were being cared for in 70 families—an average of 10 children to a family. This large number of children had not and was not now getting the medical oversight which their needs demanded and were frequently more harmed than benefited, although many of them presumably had been removed in the first instance because their own homes were unsatisfactory.

In another city, until very recently, a thousand children a year passed through a co-operative medical organisation, but in spite of a wealth of

medical resources in the community every child received into care was subjected to a long list of physical dangers. There were misfeeding, under-feeding, overcrowding, improper clothing, improper sleeping facilities, exposure to various infections, inadequate and insufficient control as to personal hygiene over a period of six or seven years, so that child after child had registered against it in the name of charity a list of ills from which he had a difficult or impossible time to escape or recover. This association's reports indicated that they were doing effective medical work, yet by no possible stretch of the imagination could this be honestly claimed. The responsibility for this situation rested almost entirely with the directors and officers of the agencies. Direct medical control had never been voted to the physicians whose services were being sought, and of course they were powerless when it came to forcing a change. The social influence of the directors of these agencies was such as to make criticism a task not lightly to be attempted, and because of this fear many children were injured.

Mr. Murphy cited many other instances where social agencies and child-welfare organisations neglected or ignored true medical supervision, yet professed to be doing much for the children under their care. He advocated medical opinion to bring about a good law covering the foster care of babies under three years of age. He believed much of the poor medical work was due to short-sightedness of the agencies in question, and in part to a disinclination of the physician to assert what he felt were minimum standards. Good medical work toned up all the work of a children's agency. The physician should be the final judge in every question of vocational choice, the meaning of some act of misconduct, the return of a child to its home, and innumerable kindred questions.

Malnutrition and its Treatment by the Class Method.—Dr. JOHN D. DONNELLY pointed out that the primary object of a nutritional clinic was to recognise, sort out and care for physically and mentally subnormal children. In each instance a diagnosis should be made based upon physical, mental and social examinations. He used Dr. Emerson's table of weights as a weight standard. He insisted upon the necessity of careful and complete history-taking. Aside from physical defects and points of infection, the children in his clinic as a class presented the picture of over-fatigue. It was common to find in their histories that they were subject to frequent colds, attacks of tonsillitis, and that "all bad colds developed into bronchitis." As a class they revealed an absence of any definite daily routine in life, a fair number were backward in school, and a few were the victims of poor home training. All of them were over-active, most of them received wholesome food in sufficient quantities.

There were certain social factors which bore directly or indirectly upon the underlying causes of malnutrition in some children, viz. poor housing conditions, poverty, filth, lack of personal hygiene, high cost of simple foods, no wage-earner in the family or the wage-earner incapacitated through illness, and last but not least, those homes in which the widowed or deserted mother absented herself all day while she tried to support her family.

Dr. Emerson, of Boston, was the first to demonstrate what could be accomplished among these children by the class method of study and treatment. All physical defects and faulty habits interfering with physiological functions and nutrition must be removed. All sources of infection must be cleaned out or removed. The children should be submitted to a routine

eye, ear, nose and throat and dental examination, and where indicated an X-ray study of the chest and abdomen should be made. Special studies and laboratory work should be done when indicated. The next thing was to secure the whole-hearted co-operation of the parents—and at times of the entire family.

He laid special emphasis upon the close association of fatigue and malnutrition and the urgent need of rest for these children. The best results were obtained by complete rest in bed for one or two hours daily, usually in the late afternoon, and the child put to bed not later than 8 p.m., being permitted to remain there till 8 a.m. next morning. Should it be necessary to remove the child from school so as to ensure the required rest this should be done, as restoration to health took precedent over education. Their diets should be well balanced, averaging 3500 to 4000 calories per day. Daily lunches taken to school aided greatly in increasing their diets. Obviously children under weight required more calories than those of average weight and the appetite of the average growing child was at times quite large.

Dr. Donnelly showed charts of some of the children, illustrating the return to normal weight and increased resistance to infection when the underlying faults were recognised and removed. There were also charts of children presenting medical and social problems. One of these charts demonstrated what could be accomplished by proper foster care: the agency responsible for that particular child co-operated with the clinic and placed her in a home where she had an environment similar to the average real home and under medical supervision; she had to date made the best record in class, the best record among some sixty children, the majority of which lived with their parents in good homes.

Société de Pédiatrie, Paris.

February the 15th, 1921.

Acute Encephalitis in Children.—M. J. COMBY stated that in the course of fifteen years he had observed 62 cases of epidemic encephalitis, sporadic or epidemic, primary or secondary, in children aged from 1½ months upwards. Apart from epidemic encephalitis, the causes of the condition were, in order of frequency—influenza, enteritis, whooping-cough, congenital syphilis, measles, vaccination, gastric disturbance, falls on the head, otitis, carbon dioxide poisoning. Twenty-seven were in males and 35 in females. In 32 cases the onset was sudden. When the encephalitis was secondary to an infectious disease the invasion might be insidious and even escape notice. Spasms, contractures and rigidity were noted in a large number of cases. The eyes were frequently involved, as was shown by ptosis, strabismus, mydriasis, diplopia, nystagmus and conjugate deviation. Optic neuritis with subsequent blindness was seen in 2 cases. Aphasia and mutism were occasionally seen. Transient or persistent paralysis was more frequent, spastic hemiplegia being observed in 8 cases on the right side and in 8 cases on the left side. Brachial monoplegia occurred in 1 case, paraplegia in 5 cases, facial paralysis in 7 cases and vesical paralysis

in 1 case. Myoclonic manifestations were frequent, especially during the epidemic encephalitis of the last three years. Lethargy was less common than insomnia. Fever was very variable. There was often apyrexia or only a moderate rise of temperature, but in a few cases the temperature was as high as 105.8° F. The acute stage might be followed by psychical or motor disturbances, such as dementia præcox, backwardness, loss of memory, epilepsy, spastic paralysis and athetosis. The prognosis was less severe in children than in adults. Six of the 62 cases died—a mortality of 9.60 per cent. Recovery without sequelæ took place in 20 per cent., and with sequelæ in over 66 per cent. Treatment could only be symptomatic and palliative, and consisted in application of ice-bags to the head, blisters to the back of the neck, purgatives and enemas. M. Comby regarded fixation abscesses as barbarous and useless.

March the 15th, 1921.

Parkinsonian Syndromes following Lethargic Encephalitis.—

M. P. LEREBoullet reported two examples of this condition. The first was in a boy, aged 16 years, who a year after the attack of encephalitis presented psychical inertia and slight tremor. The second case was that of a boy, aged 12 years, who showed a general rigidity of the Parkinsonian type without tremor, but with some mental fatigue, difficulty of attention, rapid fatigue on walking and exaggeration of the reflexes.

Neuralgia and Contracture of the Neck due to Spina Bifida Occulta of the Cervical Vertebrae.—M. LANCE showed a girl, aged 10 years, who had been complaining for two years of pain in the right shoulder. Examination showed cutaneous hyperæsthesia and tenderness on pressure over the lower branches of the right superficial cervical plexus, right side of the neck, scapular region, shoulder and chest half-way to the nipple. There was contracture of the trapezius and sterno-mastoid, causing elevation of the right scapula and shoulder. X rays showed spina bifida of the third and fifth cervical vertebrae, and in a less marked degree of the fourth cervical vertebra. On electrical examination the excitability of the right trapezius and sterno-mastoid was diminished for the faradic current and increased for the galvanic current as compared with the opposite side. The neuralgia and contractures of the trapezius and sterno-mastoid were probably due to traction caused by adhesions of the cord and its roots at the site of the spina bifida.

Operations for Temporo-maxillary Ankylosis.—MM. L. DUFOUR-MENTEL and M. DARSISSAC reported two cases showing that surgical treatment of temporo-maxillary ankylosis is liable to be followed by a rapid relapse if continuous mobilisation is not employed. The apparatus invented by M. Darsissac by which this was effected was described. The speakers pointed out that ankylosis in children rapidly caused an arrest of development of the lower jaw, which rendered the treatment still more necessary and urgent than in the adult.

Hirschsprung's Syndrome in a Child, aged 3½ years.—MM. G. L. HALLEZ and BLECHMANN, who showed this case, remarked that it had been conclusively proved that all the clinical and anatomical signs of so-called congenital and idiopathic dilatation of the colon may occur in the acquired affection due to mechanical causes. The present case was that of a hitherto

healthy boy who, at the age of $3\frac{1}{2}$ years, began to suffer from obstinate constipation, which he had never had in infancy. X-ray examination showed enormous dilatation of the large intestine with elongation of the ilio-pelvic colon, which extended well above the pelvis with a sharp curve towards the right. Considerable improvement took place under purely medical treatment, consisting of oil enemata and a mixture containing sulphate, phosphate and bicarbonate of soda, for which two teaspoonfuls of vaseline were substituted later.

Erythrodermia Desquamativa.—MM. G. BLECHMANN and HALLEZ showed a severe case of Moussous-Leiner's disease in a child, aged 7 months, in whom various methods of treatment had been unsuccessfully applied until subcutaneous injections of mother's milk were employed, when increase of weight and progressive recovery took place.

Generalised Exfoliative Erythrodermia.—MM. E. CASSOUTE and P. VIGNE, of Marseilles, reported a case in an infant, who, ten days after birth, presented a very marked erythema on the buttocks. The lesions rapidly spread, and in three weeks involved all the skin except that of the palms and soles. The skin was dark red and covered by desquamating patches, the condition being most marked on the abdomen, face and scalp. The general condition was not serious and there was no fever. Recovery took place under simple local applications.

The Lesions of the Connective Tissue in the Nephritis of Choleric Diarrhœa.—M. H. SLOBOZIANO, of Bucharest, made a histological examination of the kidneys in eight cases of cholericiform diarrhœa, and found, besides the well-known lesions of the renal parenchyma, a considerable reaction of the connective tissue. A granulo-fatty degeneration of the secreting epithelium and lesions of hyperæmia were marked in almost all the cases. A proliferative process was constantly found in all, and was very marked in two. The toxin of cholericiform diarrhœa may therefore give rise to a mixed nephritis, in which, in addition to degenerative lesions of the secreting cells of the kidney, an acute glomerulitis occurs and a cellular infiltration of the tissue surrounding the straight tubules.

Digestive Leucocytosis in the Child.—MM. LESNÉ and LANGLE, as the result of ninety-five examinations, came to the following conclusions: (1) The cause of digestive leucocytosis in the child is very variable, and it is very difficult to lay down a precise law applicable to all cases. (2) The previous ingestion of peptone has an inhibitory action on leucopenia, probably by modifying the colloid state of the blood. (3) Excess of sugar in the milk has a similar influence, and acts by stimulating the hepatic functions. (4) Digestive leucocytosis differs in the breast-fed and in the bottle-fed baby. The homogeneous albumin of the mother's milk is better tolerated than the heterogeneous albumin of cow's milk—a further argument, if one were needed, in favour of maternal feeding. (5) In hypotrophic children leucopenia is constant even after ingestion of very small quantities of milk. It is also found in infective purpura and malignant diphtheria, and is invariable in the serum disease.

A Case of Asthma in a Non-tuberculous Child.—M. G. SALÈS reported a case in a boy, aged $8\frac{1}{2}$ years, who had typical attacks of asthma with an eosinophilia of 10 per cent. and without any trace of tuberclosis.

There were no enlarged glands, no signs of tracheo-bronchial adenopathy, and no induration of the apices. The cuti- and intra-dermo reactions were negative.

A Case of Acute Meningitis due to Pfeiffer's Bacillus.—MM. RICHARDIÈRE and G. SALÈS reported a fatal case in a male infant, aged 4 months. Unlike most of the cases which showed other manifestations of influenza, the meningitis was primary and there was no history of exposure to influenza. Lumbar puncture and puncture through the external angle of the anterior fontanelle showed that the meningitis was cerebro-spinal. The cerebro-spinal fluid was purulent, and contained a large quantity of Pfeiffer's bacilli. Immediately after being withdrawn the fluid formed a very thick clot surmounted by a layer of clear fluid, as the speakers had found in another case of Pfeiffer's meningitis.

Abstracts from Current Literature.

Diseases of the Nervous System.

Familial spastic paraplegia (*'La Pediatria,'* 1920, xxviii, p. 893).—S. de Stefano gives details of five cases observed by him. In one family, however, four members were affected and in the other three, bringing into prominence the essential familial character of the disease. The symptomatology showed remarkable uniformity, constituting a well-defined clinical form of the three cases of the second family, all of whom were under clinical observation: in the first the intelligence was well preserved, in the second slightly dull, while in the third there was a definite condition of idiocy with muttering and dribbling of saliva; in the first there was galvanic hyper-excitability only in the lower limbs, in the second in the upper limbs, while in the third there was slight paresis of the upper limbs and right side of the face. These small variations are merely different stages of the same disease, and must be interpreted as the index of a greater or less extension of the pathological process in relation to the beginning and course of the malady, and do not justify the various subdivisions described by various observers. The onset may take place at any age: in the cases reported it was observed to occur at 16 months, $2\frac{1}{2}$ years, and at 4, 5, and 6 years of age. In all five there was syphilitic infection, either shown by the Wassermann reaction or confessed to by the parents.

VINCENT DICKINSON.

Clinical types of convulsive seizures in very young babies (*'Brit. Med. Journ.,'* 1921, ii, p. 679).—John Thomson.—In 37 out of 200 the fits were due to birth injury and in 29 occurred in the first three days after delivery. The diagnosis is confirmed by a bulging fontanelle and blood-stained cerebro-spinal fluid. Cerebral hæmorrhage is ten times as common after breech as after vertex presentations. One of the commonest lesions in stillborn children is tearing of the dura mater, which occurs sixteen times more frequently in breech than in vertex presentations. In vertex cases tentorial tears were found chiefly after difficult forceps cases. Prematurity is a serious cause of cerebral hæmorrhage and is due to over-

filling and bursting of the cranial veins. It is seven times commoner in breech than in vertex cases. Breech cases must be avoided by cephalic version between the seventh and eighth month of pregnancy. Many cases recover, but there may be instability or mental defect or epilepsy. Spastic rigidity may develop. In 7 per cent. of 200 the fits were due to meningitis; 6 of these died, and 1 recovered with hydrocephalus. There were 4 other cases of internal hydrocephalus: 2 died in infancy, 2 survived, one being idiotic and the other feeble-minded. In 18 (5 boys and 13 girls) there was congenital defect with *petit mal* attacks. The seizure consists in a sudden jerk forward of the head and shoulders with the arms extended and somewhat adducted and pronated. Consciousness is lost for a few seconds. Gradually the attacks are replaced by true epilepsy, and mental deterioration continues until the child is idiotic. Indigestion accounted for 46 of the 200 cases. Such fits are common in pyloric stenosis where there is dilatation of the stomach and retention of the decomposing food. In 2 there was profound jaundice, due in one to congenital obliteration of the bile-ducts. In 1 the fits were due to phimosis, in 2 to concentrated acid urine, in 2 cases to infection of the urine with *B. coli*, which causes rigors in older children. Acute bronchitis and broncho-pneumonia accounted for 6 cases, congenital heart disease for 2, otitis media and choroiditis for 1 each, and in 7 no cause could be found. Seven cases were assigned to generalised tuberculosis, but in 3 of these 7 the convulsions were few in number. Syphilis accounted for only 5 cases. The idiopathic convulsions of early infancy are characterised by slight twitchings of the face and limbs, which gradually develop into regular convulsive seizures of short duration, during which the child is unconscious and afterwards drowsy. Thirty-five were investigated, 25 being boys and 10 girls. The births were normal in 19. Forceps were used in 12, but in all the birth was easy. Thirty-one were fed one cow's milk, or some food made from it. Slight dyspepsia was recorded in half the cases, 31 were in good health, in 2 no note was made, 1 was convalescent from influenza, and another was debilitated. Treatment is satisfactory, and consists of chloral in 1-2-gr. doses two-hourly. The results in 35 cases were as follows: 3 died of pneumonia and 2 died from unknown causes, 1 was lost sight of, and 2 became mentally defective; 15 recovered but were lost sight of. Two of the 12 died of infectious disease, while the remaining 10 have kept free from fits, asthma, or severe indigestion. The only danger of moment is aspiration pneumonia, the drowsy child having difficulty in swallowing. The author considers that these fits may be due to a modified form of anaphylaxis, and quotes a case in which asthma and urticaria occurred in a breast-fed infant after the ingestion of cow's milk.

CHRISTOPHER ROLLESTON.

Cerebral hæmorrhage in infancy (*'La Pediatria,'* 1921, XXIX, p. 168).—**L. Conti** describes a case in a girl, aged $1\frac{1}{2}$ years who died, of a hæmorrhage of the basal nuclei and internal capsule. The history of attacks of shivering and sweating, the malaria-stricken locality, the pallor of the skin and mucous membranes, enlargement of the spleen and liver, presence of large mononuclears in the blood and urobilin in the urine, which was of a low specific gravity and contained hyaline casts, pointed to the diagnosis of a chronic malarial process causing a chronic nephritis, with consequent early vascular lesions of sufficient degree to produce rupture.

VINCENT DICKINSON.

Looking-glass writing; mirror writing (*'La Pediatria,'* 1921, xxix, p. 301).—**G. Berghinz** says that during twenty-five years' experience at the children's clinic at Padua only two cases of mirror-writing have been observed. According to Baglioni the mechanism is central; the nerve impulses for graphic movements of the right hand cause, when passing to the left hand, symmetrical movements owing to the bilateral and symmetrical organisation of the nerve centres. In the first case, one of complete right hemiplegia from progressive encephalitis of the Heine-Medin type, the child when she began to write did so with the left hand in mirror fashion. Later on she wrote with the left hand either in mirror fashion or normally. In the second case the child was backward in beginning to speak, did not appear to be a deaf-mute although she always seemed to lip read, and could not understand what was said when spoken to in the dark. She was left-handed and had a small cranial development. She wrote with the left hand in mirror fashion but also normally with both hands when made to do so.

VINCENT DICKINSON.

Observations on mongolism (*'La Pediatria,'* 1921, xxix, p. 49).—**O. Cozzolino** gives the following details of 23 cases of Mongolism which he observed between 1916 and May, 1920. Eighteen were males and 5 females, the youngest being 4 months and the oldest 10 years. All the children with 2 exceptions were under 2 years and 16 under 1 year. Only 1 showed the presence of Mongolian spots, so that Cozzolino does not agree with Pentagna, who maintains that Mongolian spots on the sacrum are characteristic of Mongolian imbecility. The familial occurrence of Mongolism was exemplified by the family, in which there were two cases. In one case there was congenital heart disease, probably patent interventricular septum, in one slight hypothyroidism, in two micromelia, which in one was confined to the upper limbs, and in the other involved all four limbs. The blood-pressure examined with Pachon's oscillogometer in 8 cases was a little below normal. Dystrophic lesions in the fundus in the form of loss of choroidal pigmentation was found in 15 out of 17 cases examined.

J. D. ROLLESTON.

The brain in a case of Mongoloid idiocy (*'La Pediatria,'* 1921, xxix, p. 49).—**O. Cozzolino** describes the case of a boy, aged 21 months, in whom the autopsy showed the weight of the brain was below normal, the two hemispheres were asymmetrical, there was under-development of the frontal and fronto-parietal regions and diminished thickness of the cortical grey matter: relative simplicity of the cerebral convolutions with marked reduction in their number, and in the size of the folds and tertiary sulci; presence of depressions on the cortex; existence of certain characteristics, which must be regarded as ancestral or retrogressive or due to arrest of development such as inferior development of the inferior frontal convolution, the presence of an ethmoidal beak in the orbital aspect of the frontal lobe, extension of the parieto-occipital cleft on to the external aspect of the hemispheres, reduction in size of the quadrilateral lobe and simplification in its conformation, especially on the right side. These characters gave the brain the appearance of one belonging to an individual in whom, especially with regard to defective development of the brain-mantle, the higher psychological activities could not have evolved normally.

VINCENT DICKINSON.

Ætiology of epidemic encephalitis (*'La Pediatria,'* 1920, xxviii, p. 985).—**S. Maggiore and M. Sindoni** report experiments on this

subject. Two theories are prevalent, one that the affection is attributable to the influenza bacillus, the other that it is analogous or identical with Heine-Medin's disease. They found that they were able to isolate the germ of the latter from the cerebro-spinal fluid and from the blood and to reproduce the disease in animals by intracranial inoculation of the cerebro-spinal fluid or of cultures intravenously; identical clinical symptoms were produced in these cases. They consider the disease one of septicæmic type, with portal of entry in the naso-pharynx and secondary localisation in the nervous system. If any difference exists it is in the fact that in epidemic encephalitis, inversely to what obtains in Heine-Medin's disease, adults and children are affected with the same frequency. The good results of anti-influenzal vaccine treatment are to be explained by the mechanism being, not one of specific immune therapy, but one of protein therapy.

VINCENT DICKINSON.

Epidemic encephalitis (encephalitis lethargica) in childhood: with special reference to the changes in the cerebro-spinal fluid. (*Glasg. Med. Journ.*, 1921, I, p. 18).—**L. Findlay and C. Shiskin** present a very interesting review of the history, symptomatology, ætiology and pathology of this complaint. They submit personal observations on 24 cases in children seen during 1920. Most of the cases sickened in spring and early summer. Sex-incidence was a striking feature—20 were boys. The onset was sudden, with or without headache and slight fever, and the early development of choreiform movements. These latter at times were so severe that the patient jumped about in bed as if being tossed in a blanket. There was frequently present at the same time, or there appeared later, paralysis of some cranial nerve, or of a limb. The fever and choreiform movements usually subsided within a day or so, the excitability giving place to lethargy, which was of varying severity, sometimes only amounting to drowsiness, at other times being intense, amounting in fact to coma. The lethargy gradually got less, and was followed by the most remarkable nocturnal restlessness. Instead of falling asleep at the usual time the child seemed to become brighter. He might lie quite still with his eyes open, staring around; or at other times he would sit up in bed and ask for his books or toys. After a time he would lay these aside and lie down, as if prepared for sleep, only to be found soon after sitting up in bed shaking the pillows or re-arranging the bed-clothes. In more severe cases the children stand up in bed, write or draw on the wall, etc. In the late morning the child usually ultimately falls asleep and will then sleep until well into the forenoon. The behaviour of this restlessness suggested that it might be psychic in nature, but treatment by suggestion owing to the age of the patient proved unsuitable. In several cases hypodermic injection of sterile water gave promising results. The paralysis was usually of the extrinsic or the intrinsic muscles of the orbit, paralysis of accommodation frequently but never the Argyll-Robertson pupil, partial or complete paralysis of a limb; complete hemiplegia has been noted. Changes in the fundus oculi were observed in one case during the early manifestations—swelling of the disc with tortuosity of the veins and obscuration of the vessels in places. The cerebro-spinal fluid was carefully and systematically examined and full details of the changes found are given. The pathologist reported an absence of organisms in film and culture of all specimens submitted to him. As to treatment, urotropine and neokharsivan were tried without any apparent benefits. *Résumés* of the case-histories are appended.

J. ALLAN.

Optic neuritis in encephalitis lethargica ('*Lancet*,' 1920, II, p. 1245).—**C. P. Symonds** describes four cases of encephalitis lethargica in which optic neuritis occurred, two of them being girls aged 9 and 10 years. Buzzard and Vincent had previously described cases, while McNalty and Morax and Bullock described the fundi as normal. The first case occurred in a girl, aged 9 years, who became stupid at school work in January, 1920. She had pains in head, arms and legs, but continued at school. On March 1 involuntary movements of left hand and twitching of left side of mouth were noted. On March 17 high fever and enlarged glands developed. On March 25 she was unsteady on her legs, and in the course of a day or two became paralysed from the knees down. In June there were bouts of vomiting and headache for a week. In September she showed complete left homonymous hemianopia with double optic neuritis, the swelling being less than 1 D. There was slight defect of sensation in the arms and feet. There were involuntary movements of the left arm, most marked on excitement and vigorous bodily movement. The muscles concerned were the abductors and adductors of the shoulders, the pronators and supinators of the arms, and the extensors and flexors of the wrist. The movements were of small amplitude and consisted of three extensions per second. The lower limbs showed complete bilateral paralysis, with absent tendon reflexes. There was lymphocytosis of the cerebro-spinal fluid. In the girl aged 10 years there was a sudden onset with headache and vomiting, followed in two weeks by weakness of the legs. Acuity of vision and visual fields were normal. Both optic discs were hazy. Sensation was impaired in both arms and feet with tenderness in the calves. There was extensive weakness in the arms and legs, more marked in the latter. There was lymphocytosis and excess of globulin in the cerebro-spinal fluid. Both cases showed striking polyneuritic symptoms, but differed from polyneuritis by reason of the cerebro-spinal fluid changes and the optic neuritis. There is no evidence that the virus of poliomyelitis can give rise to polyneuritis. Optic neuritis is associated with disseminated myelitis, but the microscopical changes differ from those of encephalitis. CHRISTOPHER ROLLESTON.

Preliminary note on the use of psychological tests of mental retardation ('*Med. Officer*,' 1921, xxv, p. 49).—**H. Herd** states that school progress is a poor criterion as the children may be lazy and develop tardily. Testing each faculty is also untrustworthy, *e.g.* testing for memory by repeating nonsensical sentences makes no allowance for association, on which memory chiefly depends. Terman's modification of Binet's tests is favourably referred to. Six tests are allotted to each year from 3 to 10 and 2 months are allowed for each test up to 10, three or four months for the later years. Some of the tests are far more valuable than others; especially valuable are the "comprehensive tests," *e.g.* what would the child do under certain circumstances? the detection of absurdities in sentences, and the appreciation of similarity and contrast. But the greater value of these is not conceded in the mechanical method of scoring. Again, in the repetition of three sets of five numerals, a pass is recorded if the child succeeds in one set, but no extra credit is given if the child repeats all the three correctly. The educational factor enters considerably into the tests, as the author found that three markedly defective children succeeded very well in some of the tests, but further inquiry elicited the fact that they had been in a Montessori school. Due allowance must be made for heredity, school attendance, work out of school hours, and physical condition. CHRISTOPHER ROLLESTON.

Otology, Rhinology and Laryngology.

Hearing in the newborn (*Il Policlinico, Sez. Prat.*, 1921, xxviii, p. 1010).

—**O. Waltan** carried out observations at the Genoa Maternity Institute on fifty infants within the first hours or days of life and found that all the new born without exception responded by blinking or sometimes by tight closure of the lids and crying on the sharp, sudden and short sound of a pitch-pipe of 1080 vibrations to the second, while they did not respond to the tuning-fork, tam-tam or whistles. This indicates that in the newborn the perception of sound takes place through the air and not by a bony channel, as in the newborn ossification of the cranial bones is not complete, and there cannot be an osteotympanic transmission of sound as in the adult, in whom the cranial bones form a complete whole which better transmits the vibrations of sound. On approaching the pitch-pipe to within 1 cm. of the ear a movement of rotation of the head took place in the antero-posterior axis according to the side on which the sound was made, together with a lateral nystagmus of the eyeball on the same side. Waltan regards these movements of reaction as a defensive function and as a function of orientation probably connected with the three semicircular canals.

J. D. ROLLESTON.

Congenital malformation of the ear with facial paralysis (*Rev. de lar., d'otol. et de rhinol.*, 1920, xli, p. 449).—**E. Bonnet-Roy** records a case in a boy, aged 5 years, in whom the right pinna was represented by a triangular projection with its apex below and base not extending above the upper pole of the tragus. There was atresia of the external auditory meatus. There was also incomplete facial paralysis on the same side. The child's physical and mental development was otherwise normal. The facial paralysis, which was not caused by the accoucheur, was probably due to defective development of the fibrous portion of the temporal bone, as on X-ray examination the mastoid process, which was normally developed on the left side, showed only cells above the shadow of the lateral sinus on the right.

J. D. ROLLESTON.

Middle-ear disease in children (*New York Med. Journ.*, 1920, cxii, p. 1024).—**J. Fieldman** and **S. D. Greenfield** point out the importance of examination of the ear in cases of unexplained pyrexia in children, before discharge has appeared, especially after measles, diphtheria or scarlet fever. If there be a good-sized opening in the drum the condition will not explain the fever, but if the hole be small and the drum bulging proper drainage should be secured. Sagging of the positive superior canal wall is an important sign, but does not in itself call for operation, as some of these cases clear up rapidly and completely.

J. PORTER PARKINSON.

Recurrent mastoiditis in children (*Journ. de Méd. de Bordeaux*, 1921, xcii, p. 445).—**P. Cadenaule** and **Retrouvey**, who report three cases in children aged 4, 7 and 11 years respectively, state that recurrent mastoiditis is a comparatively rare affection, barely forty cases having been reported since 1901, when Israël, of Turin, published the first five cases. A recurrence of mastoiditis may be said to occur when there has been a complete recovery after the first operation. Mastoiditis may be regarded as cured when the retro-audicular scar is normal, slightly depressed, without a scab or fistula, and is painless on pressure, when there is no discharge from the

ear or exudation in the tympanic cavity, when the perforation in the tympanic membrane is cicatrised and hearing has become normal again. Recurrence has been attributed to various causes, such as persistence of latent micro-organisms, defective cicatrisation, special vulnerability of a previously infected mastoid. As a rule there is only one recurrence, but in predisposed individuals several recurrences may take place. In one of the writer's cases the fourth operation occurred four and a half years after the first. Usually the mastoiditis recurs in the antrum at the site of the first operation, but in some cases it may attack one of the groups of antral cells. The recurrence generally takes place in the course of the first year, and most of the recorded cases have been observed between a few months and two years after the first attack. Moure, however, mentions a case in which recurrence took place after eight years, and Tarnaud reports one after seventeen years. The recurrence may develop at any age, even as late as 70 or 80, but it is most frequent in children, who are more liable than adults to ear complications.

J. D. ROLLESTON.

Pyodermia of the face and the external ear (*'Rev. de lar., d'otol. et de rhinol.'* 1920, xli, p. 370).—**L. Bar**, who records an illustrative case in a girl, aged 3 years, states that pyodermia of the face may invade the concha and external auditory meatus and gives rise to an extensive simple or complicated otitis externa. The inflammation is usually confined to the external ear, and propagation to the middle ear is exceptional. Though superficial, the inflammation may be serious and give rise to periostitis, osteo-myelitis and thrombophlebitis of the sinuses. An increase in virulence of the organisms may lead to generalised septicæmia. Bar recommends that in all cases of pyodermia of the face careful antiseptic precautions should be taken to prevent the ear being infected.

J. D. ROLLESTON.

The Wassermann reaction in deaf-mutes (*'Rev. de lar., d'otol. et de rhinol.'* 1921, xlii, p. 262).—**Ardenne** investigated the Wassermann reaction in twenty-three cases of deaf-mutism, which he divided into two groups. The first consisted of 11 children, in whom the deafness was undoubtedly congenital. In this group the reaction was positive in 8 and negative in 3. The second group consisted of 12 cases in which the deafness could be explained by a lesion of the middle ear or by a disease in infancy, such as cerebro-spinal fever, or in which the cause of the deafness was unknown. In this group the Wassermann reaction was positive in 5 and negative in 7. Although definite conclusions could not be drawn from so small a number of cases, Ardenne suggests that a systematic study of the Wassermann reaction in deaf-mutism will throw light on the ætiology of the condition.

J. D. ROLLESTON.

Congenital atresia and occlusion of the choanæ (*'Rev. de lar., d'otol. et de rhinol.'* 1921, xlii, pp. 111 and 143).—**J. Mouret** and **P. Cazejust** state that this condition is fairly uncommon, and is liable to be mistaken for adenoids by practitioners who are not specialists. In the infant the symptoms vary according as the occlusion is bilateral and complete or bilateral and incomplete or unilateral. In cases of bilateral occlusion the symptoms are very grave. If the child does not die immediately after birth death takes place very rapidly as he can neither breathe nor suck. In cases of incomplete occlusion the symptoms are less severe. The cyanosis and

recession, which vary according to the degree of nasal permeability, increase during lactation. The child has occasional attacks of suffocation. His sleep is restless. Owing to deficient nourishment he loses flesh more or less rapidly and sooner or later death takes place. Occlusion of the choanæ must be distinguished from adenoids, enlargement of the turbinate bones, deviated septum, polypi and foreign bodies, and in the newborn from fibrinous laryngitis. Treatment is exclusively surgical, and consists in rendering the nasal passages as permeable as possible.

J. D. ROLLESTON.

Nasal stasis (*Med. Times*, 1920, XLVIII, p. 98).—**Octavia Lewin** describes nasal stasis as a condition of nasal obstruction, either partial or complete, that is, due to no organic fault, but merely to a collection of dust or *débris* and semi-dried secretions, that is not or cannot be cleared away by natural methods, the result being that full breathing cannot be accomplished without having to keep the mouth open, or at any rate having to open it at frequent intervals for a gasp of breath. She discusses ætiology, symptomatology, complications, diagnosis and treatment. She points out that the aim of all nasal treatment is to preserve or to restore full nasal breathing and to abolish all necessity for supplementing it with the open mouth. The only safe way of clearing the passages and restoring the natural functions is by natural methods, namely, by sneezing and blowing outwards. Simple mechanical laws are then followed, and grave pitfalls are avoided. Instruction in the laws of nasal hygiene should be part of the ordinary curriculum in early days of school when bad habits can be forestalled or corrected if already established. The questions of food and clothing are also of vital importance as they have a considerable influence on respiration. Breathing exercises should be withheld in all cases of nasal obstruction lest they should further tax the lungs, already overburdened with the air supplied to them unfiltered, unwarmed and unmoistened.

J. ALLAN.

Glioma of the nasal fossa (*Rev. de lar., d'otol. et de rhinol.*, 1920, XLI, p. 593).—**Anglade and Philip** report the case of an infant aged 3 days whose right nostril had been obstructed since birth by a small red tumour projecting at the nasal orifice. Respiration was stertorous and sleep was disturbed. The tumour, which was the size of a kidney bean, was removed with relief of the symptoms. A recurrence took place three months later, a tumour was again removed and an application of radium was employed with success. The writers have found only four other cases of nasal glioma on record, in two of which the tumour was situated at the root of the nose and in the other two was intranasal. Possibly, however, the condition is less rare than is supposed, as in the first place a large number of nasal tumours are removed without histological examination, and secondly the method required to reveal neuroglia is an elaborate one.

J. D. ROLLESTON.

The tonsil and its function (*Glasg. Med. Journ.*, 1920, II, p. 344).—**J. Harper** examines the question of the possible function of the tonsil from three points: (1) From a developmental point of view; (2) phylogenetically; and (3) to seek for some ill-effect on the organism due to the loss of such possible function. He attempts to prove that the tonsil is a source of grave potential danger to the child, and he maintains that its early and complete removal should be insisted on should there be any reason to suspect that its presence is having an ill-effect on the well-being of the individual.

J. ALLAN.

Unhealthy tonsils and cervical adenitis ('*Lancet*,' 1921, II, p. 997).—**W. Howarth and S. R. Gloyne** ask, Is the palatine tonsil a common portal of entry for the tubercle bacillus, and are enlarged and unhealthy tonsils usually tuberculous, or does the tonsil become enlarged from septic absorption and only harbour the tubercle bacillus occasionally? Only cases of unhealthy tonsils complicated by enlarged glands were investigated. The tonsils were removed completely in their capsules. Films were made from the muco-pus of the throat and from the tonsils, and sections of the latter were also cut and examined, and the remainder of the tonsils were ground together in a mortar, treated with antiformin, centrifuged, and the deposit inoculated into guinea-pigs. Out of 100 cases, 95 showed no evidence of tuberculosis. In 5 giant-cell systems were found, and 2 of these showed acid-fast bacilli identical with tubercle bacilli. No positive results were obtained from inoculating animals, which may be explained by the small number of organisms present and low virulence. The authors conclude that the tonsils are enlarged from sepsis, and that subsequently tubercle bacilli are implanted. The cervical glands are enlarged from septic absorption and usually subside on removal of the tonsils. CHRISTOPHER ROLLESTON.

Essential cases of adenoids ('*Lancet*,' 1921, II, p. 994).—**H. Merrall**.—The varying views of pædiatrists and rhinologists are detailed and the importance of repeated colds is emphasised. Among the associated defects the author finds that flat-foot is almost constant. The chief function of the naso-pharyngeal tonsil is to sterilise the incoming air. When it and the tonsil become enlarged and fibrous they are unable to function. The patient becomes anæmic and flabby and consequently flat-footed, while the septic condition of the throat sets up a similar condition in the abdominal organs, and in a few appendicitis supervenes. The author thinks that this catarrhal state is the visceral manifestation of rickets.

CHRISTOPHER ROLLESTON.

Adenoids as manifestations of hereditary syphilis or tuberculosis ('*Rev. de lar., d'otol. et de rhinol.*,' 1921, II, p. 517).—**Armengaud** states that by inquiring into the heredity and family history of children with adenoids he usually found in the parents various syphilitic manifestations, such as chronic aortitis, aneurysm of the aorta, arteriosclerosis, interstitial nephritis, chronic hepatitis, chronic myelitis, tabes, general paralysis and chronic arthropathies, while examination of the children suffering from adenoids showed stigmata of hereditary syphilis, *e. g.* Hutchinson's teeth, irregular implantation of the teeth, high arched palate and sinking in of the nasal bones. Castaigne, who performed the Wassermann reaction in 42 cases of adenoids, found a positive reaction in 31. Of these 42 cases 24 presented stigmata of hereditary syphilis, and 14 were considerably improved by anti-syphilitic treatment. These facts show the importance of syphilis in the ætiology of adenoids. In another series of cases Armengaud found that the parents had suffered at one time from tuberculous manifestations such as pleurisy, asthma, peritonitis and osteitis, while the children presented suppurative cervical adenitis and signs of chronic enteritis or chronic peritonitis. While not denying the advantage of surgical treatment of adenoids when they cause nasal obstruction, otorrhœa or recurrent bronchitis, Armengaud emphasises the importance of looking for hereditary syphilis or tuberculosis in such cases and adopting appropriate medical treatment.

J. D. ROLLESTON.

The results of the presence of adenoids in infancy (*New York State Journ. Med.*, 1921, xxi, p. 50).—**R. G. Freeman** maintains that an obstructive adenoid should be removed by operation as soon as it has persisted several months. Those cases in which it has existed from birth should be operated on by the third or fifth month. Neglect to operate at this time leads to the development during the first year of the short upper lip, the narrow high vault, and the collapsed nostrils which are associated with the adenoid face. Neglect to operate at this time leads also in certain cases to reflex conditions, failure to gain in weight, restlessness, convulsions, asthma and eczema. **J. ALLAN.**

Risk after operation for tonsils and adenoids (*Brit. Med. Journ.*, 1920, II, p. 887).—**Watson Williams** says that the following precautions are taken at Bristol. No children living outside Bristol, no sickly child and no child from an "epidemic area" are treated in the out-patient department. A fluid breakfast is allowed three hours before operation, which is performed in the middle of the morning. Gas or ethyl chloride is used. The child is inspected at 2 p.m. before departure and advised not to walk a step or go out for three or four days. Formamint lozenges are given to suck. The results of 100 in-patient cases are compared with 239 cases in the out-patient department. Among the in-patients there was only one unfortunate result, a case of acute otitis, as compared with 7 among the out-patients. Acute mastoid disease occurred in 3 of the out-patients, as compared with none among the in-patients. There was 1 fatal case of meningitis among the out-patients. **CHRISTOPHER ROLLESTON.**

Tonsillectomy under local anæsthesia in children (*Nederl. Tijdschr. v. Geneesk.*, 1921, I, p. 2409).—**A. S. Jacobson** has performed tonsillectomy under local anæsthesia on 162 patients, 37 of whom were children under 14 years of age without any hæmorrhage or other sequelæ. He maintains that tonsillectomy under general anæsthesia is more dangerous owing to the possibility of the *status lymphaticus* and the greater risk of aspiration pneumonia. **J. D. ROLLESTON.**

X-Ray treatment of tonsils and adenoids (*New York State Journ. Med.*, 1921, xxi, p. 14).—**W. D. Witherbee** states that it would seem probable that X-ray treatment will be indicated in cases of diseased tonsils and infra-tonsillar lymph-nodes associated with chronic endocarditis, pericarditis, hæmophilia or any co-existing conditions which contra-indicate operation or an anæsthetic. After tonsillectomy in subjects above the sixth or eighth year there still remains a considerable and possibly a vast amount of diseased lymphoid tissue containing pathogenic bacteria, and in these cases it would seem reasonable to believe that the X ray will prove to be of value. **J. ALLAN.**

Statistical records of serious and fatal hæmorrhage following operations on the tonsils (*Brit. Med. Journ.*, 1921, II, p. 431).—**A. Brown-Kelly** states that 10 cases were described between 1887 and 1892. Two of these were in children of 14 and 7 years and the rest in adults. Hæmorrhage set in a few hours after the operation. Between 1916 and 1920 O. Wilkinson reported severe hæmorrhage in 7 out of 200 operations: 4 of these were cases of primary and 3 of secondary hæmorrhage. Mygind reported secondary hæmorrhage in 8 per cent. of his cases. Most of his

patients were between 30 and 40; none were under 15. It could always be checked by ligature. McKinney reported 2 severe hæmorrhages in cases complicated by renal disease. Douglas Beaman reported on 1560 operations. Hæmorrhage occurred in 6.5 per cent. of the cases, most of whom were children. In 90 cases there was only slight capillary oozing, in 6 instances the bleeding vessel had to be clamped and in 1 ligature of the pillars was required. I. Moore had one alarming hæmorrhage in a boy, aged 6 years, checked by sponge pressure and an injection of atropine and morphine. The same authority had seen 17 other cases of severe hæmorrhage; 10 of these were adults. The faucial pillars had to be sutured in 3 of the latter. Courtenay Yorke, on the other hand, has never had to apply a ligature or stitch the pillars in a series of over 6000 cases. Cases of very serious hæmorrhage are recorded in patients afflicted with cardiac or renal disease. Well over 40 cases of pulmonary abscess following operations on the tonsils have been recorded. Manges reports 9 cases seen in his medical clinic at Mount Sinai Hospital with a mortality of 11 per cent. In one instance resection of a lobe of the lung and in another artificial pneumothorax were required. It may be due to aspiration of blood into the lungs—an hypothesis supported by the facts that (1) signs and symptoms developed in thirty-six hours, (2) the patient was operated on in the supine position, (3) the abscess was solitary and developed in the middle or lower lobe of the right lung. Septic thrombosis of the vessels in the tonsillar bed accounts for those cases which do not develop till from four to fourteen days after the operation.

CHRISTOPHER ROLLESTON.

Conditions predisposing to hæmorrhage in tonsil operations (*Brit. Med. Journ.*, 1921, II, p. 433).—J. F. O'Malley states that patients under 14 lose $2\frac{1}{2}$ to 4 oz. of blood; those over 3 $\frac{1}{2}$, 5 oz. Age favours hæmorrhage, as in adults the tonsils are more vascular and fibrous, and increased blood-pressure and arteriosclerosis come into play. During menstruation and the week preceding it there is more liability to hæmorrhage. Tortuous and pulsating carotids, internal pharyngeal arteries and angiomas may also cause trouble. Fibrosis of the tonsil prevents retraction of the cut blood-vessels and is therefore a source of danger, especially in tonsillotomy. Suppuration within the tonsil may lead to erosion of the blood-vessel or to aneurysm. Exophthalmic goitre and heart disease are also stated to be causes of severe hæmorrhage, but were not found so by the author. No operation should be undertaken during acute inflammation or suppuration, or ulceration, nor for three weeks after subsidence of these conditions. The coagulability of the blood can be increased by calcium lactate, horse and human sera. Hæmoplastin is advised by Kisch, and is given by him in a of dose 1 c.c. 15 minutes before the operation and directly after. Pituitrin is recommended in a 15-minim dose half an hour before the operation.

CHRISTOPHER ROLLESTON.

Surgical removal of tonsils: method of arresting serious hæmorrhage (*Brit. Med. Journ.*, 1921, II, p. 437).—I. Moore.—Hæmorrhage at time of tonsillotomy is controlled by sponge or swab pressure. Ice-cold water is of great service. Reactionary hæmorrhage, occurring three to six hours after operation, is treated by removing the blood-clot and ligating any bleeding point. The most serious type is a slow, persistent oozing, which should be controlled by sponge-pressure exercised by the thumb of the surgeon, the corresponding finger being below the angle of the jaw.

In complete tonsillectomy the hæmorrhage during the operation is usually of an oozing character, and is best controlled by a cotton-wool or gauze swab placed between the partially separated tonsil and the tonsillar bed. Similar methods are applied for the hæmorrhage occurring directly after the operation. A tongue spatula ensures a good view. Spurting vessels should be ligatured, but if only a small bleeding muscular area is detected it should be seized by forceps and ligated. If temporary suture of the faucial pillars is adopted the operator sits or stands at the head of the anaesthetised patient. The ligature is carried on a half circular needle with the eye close to the point, attached at a definite angle to a slender shaft $3\frac{1}{2}$ in. long. The needle is passed from before backwards in the case of the right tonsil first through the anterior pillars of the fauces and then through the posterior, $\frac{1}{4}$ in. from the free margin; as regards the left tonsil, the needle is passed first through the posterior faucial pillar. The ligatures should be cut at the end of twelve hours by angular scissors. The following precautions are advised: (1) Operation should only be performed in a hospital or nursing home. (2) A purgative should be given two days before the operation. (3) No alcohol or smoking for four days before the operation. (4) An expert anaesthetist is necessary and ether is the anaesthetic of choice. (5) After the operation the patient should be placed in bed in the lateral position, so that any bleeding may be detected by the nurse. (6) While the patient is coming round a cork should be placed between the teeth to prevent swallowing. (7) Restlessness should be controlled by morphia.

CHRISTOPHER ROLLESTON.

Practical consideration on treatment of hæmorrhage during and after operation on the tonsil (*Brit. Med. Journ.*, 1921, II, p. 440).—**Dan McKenzie** says that hæmorrhage is rare in children operated on by the guillotine. In adults the guillotine method is frequently attended by loss of blood. The usual sites of hæmorrhage are: (1) The posterior aspect of the anterior pillar of the fauces; (2) the middle of the bed of the tonsil; (3) the lower end of the wound in or near the tongue; (4) the upper pole of the wound under the hood of the soft palate. The first is the commonest site, and a long straight pair of forceps is used and the posterior surface of the pillar is nipped, not with the point, but with the side of the forceps. The ligature is passed round the shaft of the forceps, given one turn of the knot, and then slid down by means of dissecting forceps over the free end of the pressure forceps and then tightened and tied. In post-operative hæmorrhage Watson Williams' clamp may be applied for two or three hours, taking care to apply it well down in the tonsillar bed.

CHRISTOPHER ROLLESTON.

The place of the anaesthetist in operations on the tonsil (*Brit. Med. Journ.*, 1921, II, p. 443).—**G. A. H. Barton** prefers ether preceded by atropine and a little ethyl chloride. A Shipway apparatus should be used. The tongue should be kept well forward. The dorsal position, with the head well extended, is the best for the anaesthetist.

CHRISTOPHER ROLLESTON.

Treatment of Vincent's angina (*La Pediatria*, 1920, XXVIII, p. 1037).—**F. P. Borrello** publishes seven cases of Plant-Vincent's fusospirillary treated with intravenous injections of neosalvarsan. Usually two or three injections of five cgrm. sufficed. Cure resulted in about fourteen days.

VINCENT DICKINSON.

Cicatricial stricture of the œsophagus in children ('*Rev. de lar., d'otol. et de rhinol.*' 1920, xli, p. 433).—A. Brindel records five cases of apparently impermeable stricture of the œsophagus in children aged from 5 to 11 years following ingestion of caustic potash. He found that the stricture was due partly to an inflammatory condition surrounding the fibrotic ring and still more to a spasm, and came to the conclusion that the stricture could be caused to disappear by œsophagoscopy guided by radioscopy. He regards electrolysis and œsophagotomy as useless in such cases.

J. D. ROLLESTON.

Tonsillar adenitis.—('*Rev. de lar., d'otol. et de rhinol.*' 1920, xli, p. 353.) G. Portmann, who records two illustrative cases, defines this condition as a subacute tonsillitis with lymphoid hyperplasia, without any other naked eye manifestations than a considerable increase in the size of the tonsils. The condition, which is most frequent in childhood and adolescence, takes three or four days to develop, and is accompanied by cervical adenitis without much fever or general disturbance. There is slight difficulty in swallowing and interference with speech and respiration. After two or three weeks the symptoms begin to subside, and at the end of four or five weeks the tonsils have resumed their normal appearance. In exceptional cases one or both tonsils remain hypertrophied. Tonsillar adenitis, which may recur at relatively short intervals, must be distinguished from chronic enlargement of the tonsils, which is almost always bilateral and is subject to no change except attacks of acute tonsillitis. The chief distinction, however, is that chronic hypertrophy does not subside in a few weeks. Treatment consists in a single application of a solution of zinc chloride (1 in 40 or 50), followed by the use of an emollient throat-wash containing borax and benzoate of soda, and later of an astringent gargle containing guaiacum and rhatany.

J. D. ROLLESTON.

Reviews.

LEHRBUCH DER SÄUGLINGSKRANKHEITEN. By Prof. H. FINKELSTEIN. Berlin: Julius Springer, 1921. Second edition. With 174 illustrations and diagrams, partly in colour. Price 140 marks.

SINCE the publication of the first edition of Finkelstein's text-book on the diseases of infancy ten years have elapsed. In its second edition, published this spring, it has grown to formidable proportions, and extends to some 850 pages, closely printed and still more closely reasoned. The book is divided into five parts.

(1) The Development and Nourishment of the Infant, 118 pages. (2) The Damage to the Infant in its Passage from Fœtal to Extra-uterine Life, 62 pages. (3) Disturbances of Growth and Nutrition, 190 pages. (4) General Infections, 102 pages. (5) Diseases of Single Organs, 384 pages.

In pædiatrics no book has had a greater influence during the last ten years than Finkelstein's, and in Germany at least its author has been recognised as one who has gained for himself a unique position and to whose opinion attention must be paid. We think that the present edition will do nothing

to unseat the author from this high place. The book is written with a point and freshness which makes German seem quite an attractive language, whilst it emphasises its advantages for accurate statement, classification and nomenclature. A good deal of the terminology which in German sounds both appropriate and distinctive is almost untranslatable into English. In Berlin Finkelstein does not sit in the seat of his great teachers Henoch and Heubner—before the war much besides mere professional distinction was considered in making these appointments—but he has certainly inherited their powers of clinical observation and exposition in full measure.

It is, however, to the third section to which most readers will turn with the greatest interest and expectation. In these pages Finkelstein plunges very deep in the attempt to bring forth some clear conception of the nature and origin of alimentary and nutritional disturbances in infancy, always with the object before him of gaining indications for dietetic control. It is easy, as many in this country have done, to express a complete disbelief in the value of the attempt, and to refuse to be drawn into the intricacies of speculation concerning the difference between “Ernährungsschäden” and “Toxicosen,” or even between “Decomposition” and “Intoxication.” Yet in all this deep striving after a clear conception of the nature of disturbances which are little understood, little amenable to treatment and highly fatal, we feel that the author preserves a critical and balanced judgment, and is in no way carried off his feet by too brilliant speculations or too airy hypotheses. In not a few points we believe that he has demonstrated truths which were either unrecognised or subjects of dispute. We believe that Finkelstein’s teaching upon the origin, nature and treatment of that common abnormal reaction to a diet composed of cow’s milk, called by Czerny “Milchnährschädung,” is correct, and that his analysis of the rôle of carbohydrates in the infant’s dietary and of the peculiarities of different forms of carbohydrate, separately or in combination, is both true and valuable.

As he looks back upon all the labour and effort of the last quarter century, and asks himself what advance has been made, what increased power has been given to us to control the disturbances so prone to arise in artificial feeding, Finkelstein shows himself no optimist. He sees in it all no reason for jubilation, or, as he says, to cry “wie herrlich weit wir es gebracht!” He consoles himself with the thought that from this work there at least arise “many ideas for possibilities.” Certainly it is just these “ideas for possibilities” which have been wanting in the whole business in this country. It is with us only lately that work on these subjects has been begun, work which, if pursued to its end, cannot fail to interfere with the position of the experienced ward sister as representing the supreme authority upon matters so obscure. Clinicians in plenty in this country will recognise the value of Finkelstein’s clinical studies; it must be left to the work of those who are now attacking these problems from the chemical side to pronounce upon the value of his ætiological hypotheses.

H. C. C.

DISEASES OF CHILDREN. By HERMAN B. SHEFFIELD, M.D. Pp. 798.
London: Henry Kimpton, 1921. Price 48s. net.

THIS volume, which is described by the author as the consummation of nearly thirty years’ experience in the field of pædiatrics, gives a concise presentation of recent teaching as to the theory and practice of the diseases of children, and embodies many excellent features. The section on infant feeding is unusually full, and includes various formulæ for the modification

of milk, as well as special dietaries for infants and older children. There is a useful chapter on the examination of the patient and semeiology of disease, as well as a long section on the prevention and control of disease, in which a survey is made of the most modern methods of laboratory diagnosis, such as the Schick, Wassermann, Widal and Weil-Felix reactions, and the complement-fixation and tuberculin tests for tuberculosis. Although obviously the bacteriology of disease is outside the scope of a text-book of this nature, a few words on the examination of the sputum, with special reference to the characteristic staining properties of the tubercle bacilli, would probably have been of more value to the busy general practitioner than the more or less detailed description of the technique involved in the various serum tests and reactions just enumerated.

In the matter of arrangement, Dr. Sheffield has in several instances departed from the more usual classifications of diseases. In this connection Dr. Thomas McCrae has recently pointed out the difficulties of adhering consistently to any rigid plan, and the classification adopted by Dr. Sheffield, in order, as he explains, the more closely to correspond with the modern conception of the causation of certain diseases, is in some cases—such as his inclusion of multiple exostoses and of osteo-sarcoma among the specific communicable diseases—open to criticism. In the nomenclature adopted some more or less unfamiliar terms are met with, *e.g.* ileocolitis epidemica for dysentery, hæmorrhœa congenita for hæmophilia, hæmorrhœa acquisita for various forms of purpura, and pneumohypoderma for emphysema cutis.

In discussing diphtheria, stress is laid on the permanent immunity said to be effected by means of the diphtheria toxin-antitoxin—but Dr. Sheffield, although quoting at some length the conclusions arrived at by one or two American authorities, does not appear himself to have had any practical experience of it. He is a warm supporter of intubation in laryngeal diphtheria, tracheotomy only being recommended where intubation is impracticable, or has failed to give relief. We regard it as unfortunate that wine and brandy should be described as “of inestimable value” both as food and stimulant in diphtheria, especially in the septic variety, Dr. Sheffield urging that in malignant cases it should be given in large, frequently repeated doses. Strychnine and digitalis are also recommended for heart weakness. J. D. Rolleston, however, pointed out many years ago the uselessness of alcohol and strychnine as cardiac remedies in diphtheria, while adrenalin, which the same authority regards as his *unica spes unicum remedium*, and which, unlike brandy, exercises when given in the moderate doses recommended by him no toxic effect on the heart, is not even mentioned by Dr. Sheffield.

A cautious attitude is adopted in discussing the pathogenesis both of Addison's disease, which according to the author is as yet awaiting correct interpretation, and of whooping-cough, the specific germ of which is categorically stated to be still unknown, although the author adds that “there seems ample reason for the belief that the bacillus described by Jochmann, Krause, Bordet and Gengou is the immediate cause of the disease.”

In discussing the treatment of cystitis the curious statement is made (p. 585) that urotropine acts best in combination with potassium citrate, whereas it has been established that the mode of action of this drug is by the liberation of formaldehyde, which takes place more readily in the presence of acid than of alkali. Experiments confirming this have been described by Martindale and Westcott, their investigations having established the fact that though the amount of formaldehyde liberated from therapeutic doses of

urotropine is not sufficient to kill *B. coli*, the slow generation of formaldehyde by the drug in the presence of acid has the desired effect.

The section on diseases, organic and functional, of the nervous system is interesting, and as detailed as can be expected in a text-book of modest size which covers such a wide scope. Under the heading of "Amentia," in a succeeding chapter, idiocy and many allied mental deficiencies of childhood, including cretinism and mongolism, are described, and a few of the Binet-Simon tests—or modifications of them—of mental development are appended.

The numerous illustrations, several of which are in colour, are of unusual excellence, adding materially to the value of the work. E. M.

PHYSIOLOGIE NORMALE ET PATHOLOGIQUE DU NOURRISSON. By E. LESNÉ AND LÉON BINET. Pp. 297. Paris: Masson et Cie, 1921. Price 18 fr.

THIS volume supplies a definite lack in existing medical literature, embodying as it does the sum of our present knowledge of the physiological and metabolic processes of the young infant in health and disease. The authors, who are both medical men, write from the point of view of physiologist and clinician respectively, their joint work having thus a special value of its own. A large number of authorities have been consulted, an alphabetical list at the end of the book containing over 700 names, but the work of English physiologists and pædiatrists has scarcely received adequate recognition.

In the seventeen chapters of this book are discussed the blood, the circulatory mechanism, respiration, feeding, the digestive apparatus, urinary system, mammary and genital glands, skin, thermometry and calorimetry, growth, nervous and muscular systems, movement, special sense-organs, chemical composition of the body, and the means of defence possessed by the organism. These subjects, which cover the whole range of physiology as far as it concerns the young infant, are treated with commendable fulness and thoroughness, the authors having incorporated in the book the results of experiments of their own on young animals.

Much of this work is of practical interest to the physician, whose knowledge of the hygiene and of the treatment of the diseases of infancy should be founded upon an accurate knowledge of its physiology, which differs widely and in so many ways from that of the adult.

A considerable section of the book is given up to a discussion of breast and artificial feeding and of the composition of milk. The authors, while advocating suckling where possible, give a somewhat lengthier list of contra-indications than would be approved of by many pædiatrists in our own country, these contra-indications including tuberculosis, malignant disease, all organic affections of the nervous system and most of the neuroses. The section on the quantitative and qualitative feeding of the nursling is particularly full, and embodies some of the more recent teaching on the vitamins.

The whole volume forms a monograph of unusual interest, and is well worthy of careful study by the general practitioner as well as by the specialist.

The addition of an index would greatly facilitate the use of the book as a work of reference. E. M.

CONTRIBUTIONS TO THE STUDY OF PRECOCITY IN CHILDREN; THE HISTORY OF NEUROLOGY. By the late LEONARD GEORGE GUTHRIE, M.A., M.D., F.R.C.P. 8vo. Pp. 160. London: Eric G. Millar, 1921.

THIS little book consists of the Fitzpatrick Lectures on the History of Medicine, delivered at the Royal College of Physicians, London, in the years 1907 and 1908. A foreword by a relative says that the lectures are printed as they were left at the time of the author's death—that is to say, not yet completely arranged for publication. They will certainly serve as a memorial of Dr. Guthrie to his many friends, and will be read with interest by many others. As a neurologist and children's doctor and writer on precocious physical development in children, he was well suited for discussing both the subjects of the book. From his conclusions on page 68 we would quote: "Any system of education that does not allow for individuality of mind, tastes and character may be harmful. It is certain that children of mediocre ability as well as those of the psychasthenic type of precocity may suffer from mental strain in consequence of over-pressure. Clever children who possess strong nervous endowment can accumulate knowledge with impunity. It is the psychasthenic variety which is most frequently brought to naught.

. . . The precocious child is not necessarily a genius, but by careful management he may, at least, be prevented from becoming a failure." In regard to the rôle now attributed to the pineal gland in some cases of physical precocity it is interesting that Galen thought it served mainly for the support of the large veins in its neighbourhood. "Some thought that the conarium acted as a watchman to prevent overflow of the spirits from the third to the fourth ventricle. . . . This may have suggested to Descartes his whimsical views of the importance of the pineal gland as the seat of the soul" (p. 94). Prof. L. Bolk, of Amsterdam ('Lancet,' 1921. ii, p. 592), thinks that in certain cases the pineal gland may give rise to premature sexual development in children—a physiological atavism—by causing the arresting influence of the endocrine system on the function of the genital glands to be insufficient. F. P. W.

POLYCYTHÆMIA, ERYTHROCYTOSIS AND ERYTHRÆMIA (VAQUEZ-OSLER DISEASE). By F. PARKES WEBER, M.A., M.D., F.R.C.P.Lond. London: H. K. Lewis & Co., 1921. Price 21s. net.

THIS volume approaches very closely to the ideal medical monograph. The name of the author is a guarantee that no small erudition has been brought to the task before him. The result is a unique contribution to scientific literature. It is true that no decisive conclusion as to the nature of erythræmia is or could be reached. This does not detract from the usefulness of relegating to their proper positions the many syndromes with which the disease described by Vaquez and Osler has been confused. It is highly desirable for students of the subject that Ayerza's syndrome, the polycythæmia hypertonica of Geisböck and those cases which seem to depend on thrombotic obstruction of the portal vein should be sharply divided from true erythræmia. All this Dr. Parkes Weber does with skill and precision. Although erythræmia is really the subject of this book, there is a balanced consideration of other varieties of polycythæmia not associated with splenomegaly. The title is to this extent misleading, in that the space given to erythræmia in the book shows that this disease was chiefly in mind when the author commenced to write. Other varieties are mentioned more as illustrations or to elucidate diagnostic problems than for their own sake. We should have welcomed more detailed treatment of polycythæmia

neonatorum and its probable relation to icterus occurring in the first few days of life. The index of authors and references to the literature are very full, but the index to pages is unsatisfactory, owing to an absence of alphabetical order in the arrangement of sub-headings. These are small blemishes on a book which adequately summarises the world's literature on erythræmia without obscuring the views of the author, and this volume is indispensable to all who would study polycythæmia. G. W.

L'ANNÉE THÉRAPEUTIQUE. By L. CHEINISSE. Paris: Masson et Cie, 1921. Pp. 144. Price 6 francs net.

INTO this small volume Dr. Cheinisse, Editor of the Therapeutic Section of the *Presse Médicale*, has managed to compress a large amount of information, gathered from various sources, which he has set out in such a way as to render it particularly easy of reference. The work covers a large proportion of the more notable therapeutic advances made during 1920, not all of which have yet, however, substantiated the claims made on their behalf by their respective discoverers.

The plan adopted is an alphabetical arrangements of diseases under each of which headings the new methods of treatment are given, the excellent index provided facilitating reference to any drug or procedure referred to in the volume. While the book does not deal extensively or even mainly with children's diseases, there is much that is of direct interest to the pædiatrist, such as the section on tuberculous adenitis in which is discussed the intensive iodine treatment, consisting of increasing doses of the tincture till a maximum of 120 or 140 minims daily has been reached. In the treatment of Vincent's angina Dr. Cheinisse gives details both of the arsenobenzol medication—the use of which, however, he deprecates—and of the non-specific methods, including among the newer drugs which have been tried with some measure of success chromic acid, salicylic acid, and pyoktanin blue (methyl violet). For whooping-cough the two remedies commented on are benzyl benzoate, which has not been an unqualified success in this country, and the intramuscular injections of ether, first described by Prof. Audrain in 1914, and used by him in many acute infections, and since given an extended trial by various authorities, and favourably commented on by them. It may be noted in passing that similar intra-muscular injections of ether were recommended by Lassalle in broncho-pneumonia—a point to which attention is drawn in this book. The last ten pages of the volume deal with various *minutiae* in the technique of subcutaneous and intravenous injections, as also of serotherapy in diphtheria.

Dr. Cheinisse has done a great service in collecting from the literature some of the scattered references to new preparations or methods, and thus of making them more accessible to the busy general practitioner who likes to keep abreast of the times. E. M.

WHAT THE MOTHER OF A DEAF CHILD CAN DO. By MARGARET MARTIN. Stoke-on-Trent.. Price 6d. net.

THIS highly useful little book is issued jointly by the National College of Teachers of the Deaf and the Glasgow Deaf Children's Society. It should be in the hands of all who have to do with children, deaf or hearing, for it describes clearly and precisely how a hearing child learns to speak, how this is applied to the deaf child, and how the mother can help. A short introduction from Dr. Kerr Love emphasises the fact that almost all deaf

children are mentally sound, and that when a child is born deaf or becomes so by disease, his hearing will never return.

If this book—issued at the small cost of sixpence—were in the hands of every general practitioner, it would do much to dispel the remarkable ignorance that prevails concerning deaf children. M. Y.

THE ROCKEFELLER FOUNDATION. By GEORGE E. VINCENT. New York, 1921.

This abbreviated report of the Foundation, issued as a preliminary to the complete annual report, serves the double purpose of a review of the work accomplished during 1920, and the programme contemplated for 1921. The activities initiated or prosecuted during the year, either by the Foundation itself, or, more commonly, through its departmental agencies—the International Health Board, the China Medical Board, and the Division of Medical Education—included gifts of 5 million dollars to University College Hospital, 1 million francs to La Fondation Reine Elisabeth in Belgium, 3 million dollars for the University of Brussels Medical School, 5 million dollars for Canadian Medical Education, the foundation of fellowships in public health, grants in aid of campaigns against tuberculosis, malaria, yellow fever and hookworm disease, as well as help for the reorganisation of the public health laboratory system in Czecho-Slovakia, and of medical work in China. It will be seen that the activities of the Rockefeller Foundation are literally world-wide in pursuance of its avowed aim of contributing to the progress of the world by helping to increase the common store of knowledge as to the causes of disease, and through demonstrations and the services of trained experts to diffuse this information as widely as possible among all the peoples of the world.

The report points out the vital importance of research facilities in medical schools in view of the increasing emphasis that is being laid on preventive work in medicine; and in this connection some details are given of the considerations affecting the munificent gift to British medicine.

The programme for 1921 includes continued support of medical training and research in various countries, the Foundation having definitely restricted its work almost entirely to a few broad undertakings in public health and medical education. Thus, out of 788 applications for aid received during this year, all but 50 had to be refused in order to concentrate on a large enough scale upon the lines already mapped out.

The Rockefeller Foundation may sincerely be congratulated on the statesmanship and far-sightedness shown in its plan of campaign, and on the results already achieved. E. M.

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THE BRITISH JOURNAL
OF
CHILDREN'S DISEASES

FOUNDED BY GEORGE CARPENTER, M.D.

EDITED BY
J. D. ROLLESTON, M.D.

VOL. XIX

London
ADLARD & SON & WEST NEWMAN, LTD.,
BARTHOLOMEW CLOSE, E.C.

1922

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PRINTED BY ADLARD AND SON AND WEST NEWMAN, LTD.

LONDON AND DORKING.

Made and printed in Great Britain.

THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XIX.

JANUARY—MARCH, 1922.

Nos. 217-219.

Original Articles.

SYMPTOMS AND SIGNS IN CHRONIC HEART DISEASE.*

By G. A. SUTHERLAND, M.D., F.R.C.P.

In dealing with individual cases of heart disease it is advisable to have a definite line of procedure in our examination. History has shown that there are many pitfalls in connection with the diagnosis of heart disease both in early and adult life. Perhaps we shall be less liable to fall into them if a systematic examination into the signs and symptoms is made in every case. I suggest a definite line of procedure by asking you to ascertain the correct answers to the following questions.

(1) What are the symptoms complained of, and do they indicate heart disease?

(2) What are the objective signs on examination of the heart and circulation?

(3) Do the symptoms and physical signs correspond?

(4) If there are no cardiac symptoms what is the significance and importance of the physical signs?

(1) A child is frequently brought for medical examination because of suspected heart disease. If brought by the parents or friends it will usually be because of some symptom; if sent by a doctor it will usually be because of some physical sign. We have to bear clearly in mind what are the symptoms which are suggestive of heart disease and what are not. Amongst parents great stress is laid on such symptoms as fainting or faintness, a rapid change in facial

* A post-graduate lecture delivered at Paddington Green Children's Hospital.

colour—for example, sudden pallor or sudden flushing, or turning black in the face—and brief attacks of unconsciousness as in *petit mal*. Now fainting or faintness is not a common symptom in connection with heart disease in childhood, nor are sudden changes in the facial colour. When the subjects of these symptoms are children who are going about, it will be found in nine cases out of ten that the symptoms are indicative of vaso-motor instability and not of cardiac disease. So much is this the case that a history of such symptoms as the main complaint may be taken as *primâ facie* evidence that we are not dealing with a case of heart disease. Pain about the chest is another symptom frequently complained of, and viewed with alarm by the patient's friends. As a rule this symptom is not indicative of heart disease but of some entirely different source of disturbance. Pain may be induced by exertion or stress in cases of advanced heart disease, when other indications of cardiac failure will also be present, but it is not likely to occur until that stage has been reached. Pain about the chest in an otherwise healthy child may be dismissed as a symptom of heart disease.

On the other hand we have to inquire as to the presence of symptoms which may indicate heart disease. We are not now dealing with the case of children who are bedridden but with those who are going about. The chief symptoms which suggest heart trouble are shortness of breath on exertion, a disinclination to make those exertions which are a pleasure to healthy children, and a feeling of tiredness after moderate exertion. These symptoms may be the result of other conditions, but they are definitely consistent with heart disease as commonly found, and a physical examination will determine as to whether this is present. A preliminary inquiry as to a history of these symptoms and any others which may be elicited will help the examiner greatly in arriving at a correct diagnosis.

(2) A careful examination of the heart should be made for evidences of disease. Speaking generally it may be stated that the objective signs of disease predominate in childhood, while the symptoms predominate in adult and later life. The reason for this is that the early changes following rheumatic infection are not sufficiently severe or advanced to produce symptoms of cardiac weakness.

The changes in the heart to be looked for may be associated with congenital morbus cordis, or with acquired disease (chiefly rheumatic in origin) or with functional derangements. The changes met with may take the form of disturbances of rate or rhythm (irregularity), or of dilatation, or of hypertrophy, or of altered heart-sounds, or of murmurs.

(3) Having obtained a history of the symptoms, and having determined the physical changes in the heart, we have next to compare them and see whether they correspond. There must be a proper and precise evaluation of the cardiac signs and symptoms. This is clinical medicine, pure and simple. No laboratory tests, no instrumental aids can settle this question. A faulty diagnosis is often made if the examiner stops short without working out this problem. I am sometimes told that a boy has fainted at school and that there is an apical systolic murmur, and that the murmur explains the fainting. So far as I can follow the reasoning here, it is that the systolic murmur is evidence of heart disease, and that the boy had fainted because of the heart disease. In seeking for an explanation I should reverse the process and say that the fainting explains the murmur. We know the type of boy or girl who faints at school when standing up. The vaso-motor tone is low and the cardiac tonus is not fully developed. At times the cerebral circulation is not maintained at full pressure and the boy faints. At times also the ventricles do not contract and the valves do not close with their usual smartness and efficiency, and a slight reflux takes place through the mitral valve. Hence the systolic murmur. I say the fainting explains the murmur because both are due to the same cause, and that cause is not heart disease.

Whenever symptoms are present we must seek to establish a complete correspondence between the signs and symptoms. Prognosis, so far as concerns the limited number of cases in which a prognosis can be given during childhood, will be much aided by a satisfactory settlement of this question. A failure to determine the relationship between signs and symptoms will of necessity often lead to faulty treatment. We shall be led to treat the heart for symptoms which are not cardiac in origin, or to omit treatment of the heart for those that are.

(4) If no cardiac symptoms are present, what is the significance of any abnormal cardiac signs discovered on examination? As over a million children are having their hearts examined every year at the schools in this country this is a problem which presents itself very frequently. It is a problem which can be settled only by an examiner who is familiar with healthy as well as unhealthy hearts.

The first thing to be decided is as to whether the abnormal sign is really pathological or whether it comes within the range of the physiological. For example, some examiners will lay stress on dilatation of the heart if the apex-beat is felt half an inch to the

left of its normal position. They would regard as disease any change in the size or position of the heart, just as others have condemned as pathological any change in the size or position of the stomach or the colon. A child's heart will be found to vary much in size in conditions of health as well as in many conditions of ill-health, and in neither case is cardiac disease necessarily present. On the other hand if there is evidence of cardiac hypertrophy, that heaving action which can be recognised on palpation, we have a change present which is always pathological and never physiological.

Further, a condition of hypertrophy, whether it be localised to the left side, or the right side, or the base of the heart, is never primary. It will always be found to be the result of some definite lesion in the heart or about the heart, or of obstruction in the peripheral circulation. The detection of hypertrophy demands a further examination to find out the cause of the hypertrophy, and no diagnosis is complete until this has been discovered.

As regards that common cardiac sign, a systolic murmur at the apex, we have all as medical men suffered so much discredit in the past through this symptom and its interpretation that it would really be an advantage in the future to ignore it entirely. If other signs of cardiac disease are present we may consider along with them the presence of a systolic murmur about the præcordia, and determine as to whether it has an origin in a damaged valve. If, however, this murmur stands by itself as the solitary evidence of cardiac change, then I advise you to leave it severely alone.

There are many cardiac signs which we can estimate very lightly owing to their frequency and ascertained insignificance. Amongst them are the common irregularities of the heart in childhood, such as the sinus irregularity associated with respiration and an occasional extra-systole. There are few cardiac signs which of themselves are to be regarded as of serious import. There are, however, two which must be viewed as of very great importance. These are a persistently rapid cardiac rate (120 to 130) in association with other signs of heart disease, and an aortic diastolic murmur due to aortic regurgitation.

No cardiac lesion is to be assessed on the physical examination of the heart without an estimate being made as to the functional efficiency of the heart. For this reason one cannot make an estimate while a patient is confined to bed. Consider, however, the case we have been supposed to be dealing with, that of a child brought up for examination of the heart and free from a history of cardiac symptoms. A series of simple exercises such as walking,

running round the room, running up and down stairs, etc., is to be carried out, and the condition of the patient after each as to breathlessness, pulse-rate and exhaustion is to be carefully noted. We can thus determine what effect, if any, on the functional efficiency of the heart has accompanied the cardiac signs and lesions which have been found on examination. When this has been settled we are in a position to form a prognosis, and to decide as to whether any precautions or treatment may be necessary.

Let us try to apply these principles in the examination of some individual cases.

CASE 1.—This child is now 8 years old. Two years ago her mother noticed that on crying she held her breath and became black in the face. She had fainted, or felt faint, on two occasions, but had not lost consciousness and had recovered rapidly. She had seen a doctor, who, after examining the child carefully, said she had serious heart disease and must not be allowed to run or walk. The child was next taken to a neighbouring hospital, where the diagnosis of heart disease was confirmed, but the restrictions advised were not quite so rigid. In her search after the truth the mother next brought the child to this hospital. The little girl was of a bright disposition and rather nervous temperament. She was thin, of good colour, and did not suggest the appearance of *morbus cordis*. As regards symptoms, the mother had not observed anything of importance other than those mentioned above. The child had not suffered from any form of rheumatic infection.

On examination there was well-marked pulsation of the cardiac apex in the nipple line. Some might have called it dilatation and hypertrophy, but it was really a borderline case on which opinions might easily differ. Nothing else was made out indicating cardiac enlargement, but on auscultation at the base of the heart one heard a very loud double murmur running through systole and diastole, rather more marked in the former. If one were to estimate a cardiac lesion by the loudness of the murmur this would have ranked as a very serious one, for the noise produced was very great. The sounds of the heart were clear and normal, and, in fact, apart from this double murmur there was no abnormality about the heart. The situation of the murmur might have suggested a lesion of the aortic valves or pericardial friction, but the character of the murmur—sometimes described as “mill-wheel”—was entirely different. There was no doubt that we were dealing with a case of patent ductus arteriosus, the lesion having been persistent since birth.

So far we had not obtained any history of symptoms pointing to

cardiac disease, for the fainting turns and the blackness of the face on crying did not count for much. There was no real cyanosis of a persistent nature. The noisy patent ductus did not seem to have interfered with the child's growth and health. The child was then set to run round the out-patient room, which she did with thorough enjoyment as if it were a pleasure to be allowed to run once again. She passed successfully through all the tests, and we felt justified in telling the mother not to worry about the child's heart, but to let her go to school and lead the ordinary life of her schoolmates.

She has done this now for two years. During that time there has been no word of cardiac symptoms. On examining the heart to-day the only change I can note after two years is that the diastolic part of the rumbling murmur is not quite so loud as it was. Possibly the ductus may yet close and the murmur disappear entirely.

CASE 2.—This girl, aged 9 years, was sent into hospital because of her excessive adiposity and failing health. The deposit of adipose tissue throughout the body generally, and its accumulation in certain areas, was sufficiently striking to suggest a condition of pituitary disturbance—a view which was supported by a definite enlargement of the sella turcica as shown in a radiogram. Pituitary disturbance, however, would not account for some other conditions which were present.

There was very marked cyanosis of the face, giving the large features a bloated appearance. This cyanosis was not present in the fingers and there was no clubbing of the extremities. The temperature was subnormal, but the cardiac rate was persistently between 120 and 130 and the respirations 36 per minute. Even in bed the dyspnœa was evident, and she was unable to walk much owing to shortness of breath. The liver was considerably enlarged, extending some 3 in. below the costal margin in the mammillary line. The kidneys were not functioning well, the amount of urine secreted being about half the normal, and albumen was present. There were no tube-casts. The evidences of an impaired circulation were clear, but so far there was no explanation as to the cause.

Turn, now, to a fuller account of the patient's health before admission. Three years previously she had suffered from a severe attack of broncho-pneumonia associated with measles. From this time onwards she had put on weight rapidly, and had been subject to recurrent attacks of bronchitis and pneumonia. Owing to chest trouble she had not been able to attend school at all regularly. For some six weeks before admission the patient had suffered from increasing shortness of breath, and the face had taken on the dusky hue to which reference has been made.

It might be thought that an examination of the lungs and heart would easily and definitely settle the question as to the existence of any cardiac or pulmonary disease. Owing, however, to the extreme adiposity, it was difficult to determine the exact conditions in the thorax. As regards the heart the rate was rapid, the sounds were clear; at times there was a cantering rhythm owing to a reduplication of the first sound, and there were no murmurs. Marked epigastric pulsation and dulness on percussion to the right of the sternum suggested enlargement and hypertrophy of the right heart. The size of the heart, as shown in a radiogram, was increased, more especially on the right side. As regards the lungs, signs of chronic bronchial catarrh were always present, and the patient usually had a troublesome cough. Over the whole of the right lung the percussion note was impaired, and the breath-sounds were weak as compared with the left side.

So far we had not reached an explanation of the cyanosis and the signs of general circulatory failure, which was the important condition. An examination of the blood showed 6,800,000 red cells, hæmoglobin 120 per cent., and white cells 15,000. There were no changes indicative of a blood disease, and the spleen was not enlarged. While the cyanosis could be explained by the polycythæmia, or "erythrocytosis" as some would term it, there still remained to be settled the problem as to why there was such an increase in the red-cell count and the hæmoglobin.

I suggest to you that this patient has been suffering for some years from pulmonary fibrosis following broncho-pneumonia. As the result of the fibroid changes in the lung the pulmonary circulation has been interfered with; there has been a demand for more blood owing to deficient oxidation in the damaged lungs, and a compensatory erythrocytosis has followed. You will find the whole subject of compensatory polycythæmia discussed very fully in a recent book by Dr. Parkes Weber, from which I have learned much. The obstructed circulation in the lungs has not only led to the polycythæmia, it has also thrown extra work on the right side of the heart, which has become dilated and hypertrophied and is now failing. The left ventricle is failing also, for within the last few days œdema of the lower extremities has developed. So that the prognosis is not good. As regards treatment, it may be assumed that Nature has done her best in the way of increasing the number of red cells and producing compensatory hypertrophy of the heart. In both those functions it is extremely doubtful if we can do anything to improve on Nature's efforts. One factor in increasing the cardiac

weakness is the rapid rate of the heart, which prevents powerful ventricular contractions by cutting short the diastolic rest. We shall try digitalis here in full doses in order to obtain, if possible, a slower cardiac rate, and thereby more efficient ventricular contractions.

CASE 3.—A girl, aged $3\frac{1}{2}$ years, was admitted to hospital because of screaming fits at night. The history was that twelve months previously she commenced having these attacks at irregular intervals, but sometimes as frequently as five in one night. It was stated that she went stiff and grey, screamed, and complained of abdominal pain, was dazed but not unconscious, and was quite well as soon as the attack ceased. The duration of an attack varied from a few minutes to half an hour. On admission the child appeared to be well developed and healthy. On physical examination there was nothing specially abnormal. As regards the heart, it was noted that there was a soft systolic murmur over the præcordia and loudest at the apex, and that the second pulmonic sound was accentuated.

Three days after admission she had a mild attack during the night, the description of which rather confirmed the provisional diagnosis of *petit mal*. At the end of a fortnight the attacks became more frequent: during three nights she had eight attacks in all. The house-physician, Dr. Cameron Morris, who had been studying these attacks, informed me that they were more like cardiac disturbance than *petit mal*. He found that an attack began suddenly with pain in the abdomen of varying severity, but often leading to crying or screaming. She was pale about the face, but the lips were cyanosed, and she was cold all over. The pulse could not be felt at the wrist, and on auscultation the heart-rate was found to be from 160 to 180 per minute. The breathing was rapid, and the patient was always sitting up during an attack. At the end of from one to ten minutes the pain passed off, the pulse-rate dropped suddenly to 60 or 70, the respiratory trouble ceased, and the patient lay down and went to sleep.

As a rule during the day the child seemed very well and was in excellent spirits, although not inclined for much physical exertion. Occasionally an attack occurred during the day of the following nature: When up in the ward she asked to be carried after walking a few yards. A few minutes later when sitting in a chair she suddenly commenced crying, rested her head on the side of the chair and then collapsed on the floor. The face was pale and cold, the lips were blue, the pulse 160, and the patient was rather dazed. She cried a little but said she had no pain, and in a couple

of minutes she was better, the heart-rate slowing down to 60. She remained pale and quieter than usual for half an hour and then was quite herself again.

Thus far the nature of these attacks certainly pointed to some cardiac disturbance, and accordingly the heart was examined more carefully than at the routine examination. The lower part of the heart and apical region appeared to be normal as regards the size and sounds and pulsation. Over the upper part of the heart, extending from the level of the nipple to the upper border of the second rib, there was an area of strong heaving pulsation, suggestive of hypertrophied action or the dilatation of some large blood-vessel. Percussion showed that the note over this area was dull, and that in fact the normal area of cardiac dulness at the base was considerably extended both upwards and outwards to the left. At times there was a definite systolic thrill and murmur in the pulmonary area, and the second sound there was always accentuated. A skiagram showed some enlargement of the right side of the heart and also an extension upwards of the basal region of the heart or the aortic arch. The cardiac rate, apart from the changes noted during the screaming attacks, was normal and the action regular. There was no evidence of any valvular disease. The respiration was easy and natural, at a rate usually of 24 to the minute. A blood-count showed that the red cells numbered 7,250,000.

There is no doubt that a serious cardiac lesion is present, because an area of heaving pulsation at the base of the heart of this nature is almost always due to aneurysm. The exact site of the aneurysm cannot be definitely stated, but in all probability it is either in the pulmonary artery or the ductus arteriosus, and is congenital in origin, the result of some maldevelopment. Will a cardiac lesion of this nature serve to explain the attacks of pain, dyspnoea, cyanosis and tachycardia from which this child suffered? Can we make the symptoms complained of and the physical changes in the heart fit in with each other? An aneurysm produces symptoms by pressure and also by throwing extra work on the heart, and the conditions vary considerably from time to time. This child has periods of good health and then a series of these attacks—a state of affairs quite compatible with an aneurysm. The symptoms during an attack, taken individually or collectively, can be explained as the result of distress and disturbance in the heart, whose normal action is interfered with by the aneurysm of a basal blood-vessel. In the absence of any other evidence of disease we are content at present

to regard the symptoms and cardiac signs in this case as being distinctly correlated. As regards the prognosis, it must be kept in mind that some of these attacks are very severe, and all of them are very alarming. She has been in other hospitals, and was promptly put on the "danger list" after the first attack. At present the danger seems to lie more in the growth of the aneurysm than in death during one of these attacks, which have been numerous during a period of twelve months. If the aneurysm increases in size the prognosis becomes steadily worse. On the other hand, if it remains stationary or diminishes in size, its presence is by no means incompatible with her growth into adult life. There is no specific treatment here as there is no evidence of syphilis. Her life will be carefully regulated, without excessive precautions and without allowing any wild exertions or excitements.

These three cases, of a rather unusual nature, have served to illustrate the principles which were laid down at the beginning. You will see later that these principles are equally applicable in the more common forms of heart disease associated with rheumatic infection.

SOME CASES OF INCONTINENCE OF URINE.

By A. RALPH THOMPSON, Ch.M., F.R.C.S.,

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Hospital for Children, London.*

It may be worth while to put on record some cases of incontinence of urine, in which a method of treatment not indeed new, but, at the same time, perhaps not known as it should be, has been used. No excuse for describing in detail the treatment of such conditions is necessary; so long as the condition known as incontinence is a common one, any additional treatment for this distressing complaint which offers a chance of cure is worthy of some attention.

When a young patient who attends in my department at Guy's Hospital, and who is stated to be suffering from incontinence of urine, is examined, the first care is to exclude gross surgical conditions, such as stone—it may be in the bladder, it may be impacted in the urethra—or tuberculosis of the urinary tract. The second care is to exclude definite nervous lesions, such as may be associated with spina bifida. The third care is to exclude paralytic

distension of the bladder, which is associated with muscular failure of the bladder and overflow of urine. Finally in female children we must be careful to exclude vesico-vaginal fistula, which may be formed quite quietly, and quickly, owing to some unsuspected condition.

In cases which show none of the surgical conditions already indicated the knee-jerks should be always carefully examined. They are usually, and manifestly, increased in association with incontinence of urine. The blood-pressure may also be raised and should be always investigated. These two clinical signs are most useful, as affording some extra knowledge of the lesion known as incontinence of urine. This is a very necessary factor in inspiring confidence in the patient and friends. After a diagnosis of incontinence of urine has been made, and inquiries and notes made as to its frequency by day and night, belladonna and thyroid treatment is prescribed—either separately or together; but usually one drug, and that belladonna, is prescribed first. The initial doses are two minims of the tincture of belladonna, and one quarter of a grain of thyroid extract. The bowels are attended to; but above all, the child himself, if he is old enough, and the relations are told exactly what has been found out, and every effort is made, as has been just indicated, to inspire the confidence of the patient and his friends.

If at the end of a fortnight there is no improvement in the condition of urinary incontinence I still persist in the drugs, but I at once resort to training the bladder muscle.

The treatment was first suggested to me by my friend Dr. R. C. Mullins, of Grahamstown, S.A., and consists in passing a moderate-sized catheter, with the necessary precautions, and funnelling fluid in, at first under a pressure of 75 cm., and if necessary, later, under a pressure of 150 cm. The quantity injected varies of course with the age and size of the patient. Distending the bladder is a process not to be encouraged—in fact to be severely condemned—in most vesical conditions, but in these cases efforts should be made to put into the bladders of children under 4 years of age 6 oz., under 8, 8 oz., and under 16, 12 oz. or even more; the aim should be to get a reasonable minimum in. If we take 6 oz. as a reasonable minimum which the patient can hold, the fluid should be passed after removal of the catheter and collected, and the quantity should be demonstrated to the patient and relations. This is important as showing the quantity which can be retained by the patient. At the next sitting a larger quantity is introduced by the same method. The next sitting should not take place within three days of the

previous one. In older patients, such as boys at public schools, there is an additional step in treatment which may be undertaken, namely, to instruct the patient during the act of micturition to stop micturating two or three times. This puts the "compressor urethræ," wherever that muscle may be really situated, into action, as well as other muscles which control micturition. The treatment aims at dilating the bladder muscle, and training the micturition-controlling muscles to work more efficiently.

So far as I am aware I have not had a failure with this method of treatment. With an individual competent to pass a catheter no patient, as yet, has offered the slightest objection to the use of this instrument, nor have the relations done so.

The following four cases are given as illustrating the method of treatment and its results.

CASES OF INCONTINENCE OF URINE—ENURESIS.

CASE 1.—L. S—, male, aged 6 years. Attended the Genito-Urinary Out-Patient Department at Guy's Hospital on January the 7th, 1921. He had been attending another department since November the 26th, 1920.

The incontinence during the day had apparently improved with belladonna and thyroid extract, but still continued at night. Patient wets his bed every night.

On January the 7th boracic lotion was funnelled into the bladder through a catheter, and patient after removal of the catheter passed, and, therefore, had held, at least 4 oz. of fluid. Belladonna was continued, but thyroid extract discontinued.

On January the 14th 4 oz. drawn off from bladder by catheter; 6 oz. inserted, which the patient held for 8 minutes.

Belladonna continued.

On January the 21st 7 oz. inserted and retained. Patient wet his bed only three times during the week.

On February the 4th 7 oz. put in, but not retained. Patient complained of "pain" when 6 oz. had been funnelled into bladder. He had not wet his bed, and had been in Lancashire for a change of air for two weeks.

Belladonna discontinued, and malt and iron given. Patient continued to improve, and was discharged in an apparently normal condition on April the 29th, 1921.

CASE 2.—M. D—, female, aged 9 years. There had been nocturnal incontinence since babyhood. There had, been, however,

control of micturition during the daytime, "even when the patient was excited." The vulva is slightly excoriated.

Patient attended the Genito-Urinary Department at Guy's Hospital, January the 21st, 1921. Belladonna was administered.

On January the 28th condition of nocturnal enuresis remained unchanged. The urine, as tested, was alkaline, but contains no albumen nor excess of phosphates. Eight oz. of boracic lotion were funnelled into the bladder, and retained easily for 5 minutes. Belladonna was omitted, and Easton's syrup substituted.

On February the 4th 9 oz. retained in bladder for 25 minutes after funnelling in boracic fluid. Easton's syrup continued.

On February the 11th thyroid extract gr. $\frac{1}{4}$ commenced morning and evening, and Easton's syrup continued. The bladder continued to be irrigated. The patient improved, and was discharged on July the 12th, 1921, apparently cured.

In this case I am inclined to think that the effects of irrigation of the bladder were not so marked as in the previous case, and that the cure was perhaps due to the thyroid extract.

CASE 3.—L. R—, female, aged $7\frac{4}{12}$ years. During the six months previous to her admission as an out-patient to Guy's Hospital on February the 4th, 1921, the patient had had incontinence of urine day and night. She was a nervous child, and suffered from dreams at night. Previously, according to the mother, she had been perfectly normal. Rectal examination, bimanual examination and X-ray examination negatived the presence of calculus in the urinary tract. She was given calomel $\frac{1}{2}$ gr. every night for a week.

On February the 11th, thorough general examination revealed enlarged mediastinal glands at the root of the right lung. The right kidney was just palpable (as I should expect it to be at this age), but it was not tender. Thyroid extract $\frac{1}{4}$ gr. morning and evening was ordered and administered.

On February the 18th patient suffered less from incontinence during the day, but she still suffered from it at night. The thyroid extract was increased to $\frac{1}{2}$ gr. night and morning.

On February the 25th tinct. belladonnæ *mij ter die* was given in addition to the thyroid extract.

On March the 4th patient was not much better. Eight oz. of boracic fluid were injected in the bladder, and afterwards passed by the patient. The belladonna and thyroid extract were continued.

On March the 11th, in addition to the belladonna and thyroid extract, malt and iron were given. One oz. of urine was removed

from the bladder and 8 oz. returned after injection. Seven oz. only were passed, after retention of fluid for 5 minutes. This suggested that the bladder was incapable of passing the whole of the fluid in the bladder.

On March the 18th there was a little improvement in the incontinence; 2 oz. of urine removed through catheter.

On April the 1st the drug treatment was continued as before. Blood-pressure 120 mm. Two oz. of urine removed by catheter. Eight oz. of boracic fluid inserted into bladder, and 6 oz. passed after retaining fluid for 5 minutes.

On April the 8th there had not been any incontinence since last attendance. Ten oz. were inserted, and retained for 5 minutes. Thyroid treatment omitted. Blood-pressure was still 120 mm. The improvement continued. Patient was treated only with extract of malt and iron. On January the 20th, 1922, the patient reported that she had entirely lost the incontinence.

CASE 4.—X. Y. Z—, aged 17 years, a public school boy, who suffered from incontinence and whose career for the army had been stopped, and whose house master had refused to take him any longer on account of his trouble, reported to me on April the 8th, 1921. He wet his bed constantly, but apparently had fair control during the day. I injected into his bladder through a catheter a quantity of plain boiled water, at a pressure of 75 cm., and at a temperature of 100° F. He passed 700 c.c. of watery fluid. On April the 11th I injected fluid at the same pressure, and at a temperature of 112° F.: he passed 800 c.c. On April the 14th weak oxycyanide of mercury solution was injected at a temperature of 112–114° F.: he passed 800 c.c. So far, although staying temporarily at a house in London he has not wet his bed and has slept comfortably, but on April the 17th he wet his bed. On April the 18th he passed 800 c.c., which had been injected at a temperature about 98·4° F. On April the 20th he passed a little urine in his bed. I noticed that after the patient had made an effort to hold the fluid which was injected next day, at a height of 150 cm., a few drops were passed involuntarily, at the end of micturition. he passed 830 c.c. On April the 21st I ordered *liquor strychninæ* *mij*; *tinct. digitalis* *mij*, *t.d.s. a.c.*

Next night the patient passed some water in his bed. On April the 23rd I injected 830 c.c., which he completely retained for two or three minutes.

On April the 26th, the patient meanwhile not having wet his bed, I injected 850 c.c., and during evacuation of the bladder he was

instructed to stop passing the fluid twice. His holidays were now drawing to a close, and I could not treat him any longer. He had no more incontinence for one week, and went back to school. He passed water in his bed once or twice at the beginning of term, but has had no further incontinence, and reported later in the year that he was quite well. He had been made a prefect, and had got into the school "22."

I venture to think that these histories show the value of injection of fluid into the bladder in increasing quantities in cases of incontinence. Undoubtedly belladonna and thyroid extract are useful drugs for the condition, but I cannot withhold the opinion that irrigation is also likely to be most useful. Important assistance is to be found by getting the patient to hold the fluid injected for some time, but one should never wait long enough for the patient to pass it more or less involuntarily. Probably also instructing the patient to stop in the act of micturition once or twice is of great value.

I think, too, that this irrigation treatment is of importance as a test of gross surgical disease, and the next case, which to me at any rate was most instructive, may be recorded.

A boy, T. F—, aged 12 years, was admitted to Guy's Hospital on November the 3rd, 1920. He had incontinence, which appeared to be of the enuresis type, except that his bladder would not hold more than 30 c.c. of fluid. The urine was quite clear. I showed him at a clinical meeting of the Urological Section of the Royal Society of Medicine, as I was doubtful about the case being one of the usual type of incontinence. No other symptoms developed until the beginning of December, when the boy developed pain over the left renal area. No swelling was palpable. Cystoscopy was impossible. The boy rapidly went down hill, and died on December the 28th, 1920.

At the autopsy the left kidney was found to be the seat of tuberculous pyonephrosis, with complete disorganisation of the organ. The right kidney was found to be the seat of ascending nephritis, probably tuberculous.

The fact that during life the boy could not hold more than 30 c.c. of fluid when injected into the bladder should have at once warned me of a possible serious cause of the trouble; and I regret that I did not realise that the case was probably tuberculous until too late for adequate interference.

The last case, which was full of interest, shows how necessary a thorough examination is in cases of incontinence.

A girl, aged 12 years, was admitted to Guy's Hospital with a diagnosis of incontinence. There was a long history of the trouble—something like five years or even more. I assumed at first that the condition was one of the usual type, but an X-ray photograph revealed the fact that in the bladder was a stone, which had formed round a bone collar-stud, such as is used for fastening the front of a man's collar. Examination under an anæsthetic revealed the fact that there was a vesico-vaginal fistula, through which all the urine came. The hymen was of course open, and dilatable to the size of an average little finger. Mr. V. E. Lloyd, my chief clinical assistant, aided by Mr. C. H. Medlock, very kindly repaired and closed the fistula six weeks after I had removed the stone through a suprapubic wound. The patient in their hands did remarkably well, and has had no more trouble. As to how the collar-stud got into the bladder must remain a mystery. Personally I should be in favour of a vaginal route. The urethral route, I should have thought, is out of the question. There remains the possibility of an alimentary route. Such an article might have been swallowed easily, and passed, either through the walls of the small intestine or of the cæcum—more probably the latter—into the bladder, with the later formation of a vesico-vaginal fistula from the bladder side of the septum which separate the two cavities.

SUMMARY.

(1) Incontinence of urine, being a common and distressing complaint, merits the trial of any treatment which bears the test of practice.

(2) Four successful cases of injecting increasing amounts of fluid into the bladder are recorded.

(3) In cases of incontinence particular care should be taken to exclude tuberculous disease of the urinary tract (one case recorded) and also vesico-vaginal fistula (one case recorded).

(4) The knee-jerks are frequently increased in cases showing incontinence of urine. The blood-pressure may also be increased.

(5) A knowledge of these facts, and their elucidation, add to the necessary confidence of the patient and his relations in the medical man attending the case.

CASE OF ERYTHRŒDEMA (THE "PINK DISEASE"); AND
THE QUESTION OF ACRODYNIA ("EPIDEMIC ERYTHEMA").

By F. PARKES WEBER, M.A., M.D., F.R.C.P.

THE patient, a boy, was aged $2\frac{1}{2}$ years when I demonstrated the case* at the Dermatological Section of the Royal Society of Medicine



FIG. 1.

* Under the heading "A Condition Somewhat Resembling Lupus Pernio in a Child."



FIG. 2.

on April the 21st, 1921, and at the Section for the Study of Disease in Children on April the 22nd, 1921. My full account, with three illustrations, was published in the 'British Journal of Dermatology and Syphilis' for June, 1921 (vol. xxxiii, pp. 228-233). At that time the condition, in regard to the hands and feet, might almost have been termed "*acrodermatitis chronica mutilans*." There was extreme redness of the cheeks and chin (Fig. 1), and the skin of the cheeks was slightly scaly. There was a chronic offensive muco-purulent discharge from the nose, the bridge of which was very depressed. The skin of the hands (Fig. 2) tended usually to be swollen and red or cyanotic. The tips of some of the fingers had been lost by gangrene or ulceration. The feet (Fig. 3), like the hands, tended to be turgid and red or livid, and in each sole there was an irregularly shaped chronic ulcer. Fever was occasionally present, probably in connection with the septic nasal trouble. A blood-count showed nothing special; nor did the microscopical examination of a small piece removed from the edge of the ulcer on one foot. In the bones of the hands there were small areas of imperfect calcification or of decalcification, according to the results of Röntgen-ray examination. The blood-serum of the patient and his mother had previously been found to give a negative Wassermann reaction on two occasions.

For the earlier history of the case I was indebted to Dr. E. A. Cockayne, who had shown the case in January, 1920, at the Section for the Study of Disease in Children, Royal Society of Medicine. The symptoms in the left hand apparently commenced at three weeks of age. The offensive nasal discharge was noticed at the age of ten weeks. The child was breast-fed for the first seven weeks of life, and then brought up on various milk foods. A thorough trial of mercurial treatment had been made by Dr. Cockayne, but with no obvious benefit.

Subsequently attention was specially directed to the nose. Mr. G. J. Jenkins, on May the 7th, 1921, kindly examined the patient under chloroform anæsthesia, and reported that the septum nasi had almost entirely disappeared and that the turbinated bones had also largely disappeared. He could detect no bone-sequestrum. The accessory nasal sinuses were apparently not involved. Mr. Jenkins thought that the nasal disease was probably syphilitic. However, some cerebro-spinal fluid (obtained by lumbar puncture on April the 25th, 1921) gave a negative Wassermann reaction; and later on the idea of trying neosalvarsan treatment was finally abandoned, it having been found that the blood-serum gave a negative Wassermann reaction in the patient's father and mother, as well as in the patient himself.

A diphtheroid bacillus was cultivated (Lister Institute, through the kindness of Dr. J. C. G. Ledingham) from the nasal discharge and likewise from the surface of the ulcer on one of the feet, but no true diphtheria bacilli were found. Two guinea-pigs inoculated



FIG. 3.

with the diphtheroid bacillus grown from the patient's nose remained perfectly well up to eight days after inoculation.

Pirquet's cuti-reaction for tuberculosis was tried, with a negative result. At the end of July, 1921, temporary slight hæmaturia was observed.

Small doses of aspirin seemed to give some relief when the patient

was restless or crying, from pain or cutaneous irritation. A white precipitate ointment (5 per cent.) was used for the hands and feet, apparently with some benefit. Painting the nasal passages once daily with perchloride of mercury solution (1 in 1000) was likewise tried.

On October the 24th, 1921, on leaving the hospital, he weighed only 1 st. 5 lbs. 12 oz.—nearly the same as on March the 14th, 1921. There was still a chronic ulcer on the sole of the right foot, but that on the left foot had healed. The condition of the nose remained about the same. The fingers presented a somewhat more mutilated appearance than on admission.

Soon afterwards, owing to family difficulties, the child had to be sent to an infirmary hospital, where he died on January the 11th, 1922. Unfortunately no post-mortem examination was made.

I should add that, though the patient could never walk and could never use his hands properly whilst under my observation, there was no sign of definite motor paralysis. The ulceration on his feet and the mutilated and ulcerated condition of his hands would anyhow have greatly hindered the use of his upper and lower extremities.

DIAGNOSIS.

The diagnosis either of Lupus erythematosus or of Lupus pernio could not be pressed, especially as the patient was so young. Leprosy, beri-beri and pellagra were out of the question. There was no evidence of chronic arsenical poisoning. On the contrary the patient's general condition seemed slightly to improve whilst under small doses of arsenic in the hospital. Cases of so-called acrocyanosis are not accompanied by the excessive itching or pain noted in this child. Though the sclerodactylia type of scleroderma sometimes commences with attacks resembling Raynaud's syndrome in the fingers (as I have pointed out in regard to the diagnosis of certain other cases), no sclerodermatous changes developed in this case, and the chronic condition of the extremities did not resemble any variety of Raynaud's syndrome.

Erythromelalgia is a syndrome or symptom-complex, which may be due to various causes. It is characterised by pain and turgid redness or cyanosis in an extremity, nearly always a foot, especially when it is allowed to hang down or rest in a dependent position. I do not know what was the exact nature of the cases, in the description of which Weir Mitchell first coined the term, but it is perhaps best seen in cases of thrombo-angiitis obliterans,* when middle-sized

* F. Parkes Weber, "Thrombo-angiitis Obliterans (Non-syphilitic Arteritis Obliterans of Hebrews)," 'Quart. Journ. Med.,' Oxford, 1916, ix, pp. 283-300.

arteries of the affected leg have become occluded. It is likewise occasionally seen in tertiary syphilitic subjects when the same arteries are blocked. In the present case there was of course no arterial obstruction of the kind, and syphilis could be absolutely excluded. The term "erythromelalgia" has likewise been applied to redness and pain in the extremities in certain neuritic cases, for instance, during the epidemic of arsenic poisoning amongst beer-drinkers in England, 1900-1901. In the present case there was no suspicion of any possible arsenic poisoning.

When I showed the case in April, 1921, at the Dermatological Section of the Royal Society of Medicine, Dr. J. H. Sequeira suggested that it might be an exaggerated example of the condition in very young children which had in Australia been described as *erythrœdema* by Dr. H. Swift (of Adelaide) and Dr. A. J. Wood (of Melbourne), as the "pink disease" by Dr. C. P. B. Clubbe (of Sydney), and as "raw-beef hands and feet" by Dr. W. Snowball (of Melbourne). I am now convinced that this was the correct diagnosis, whatever the true ætiology of the cases in question may be. The term "*erythrœdema*" is admitted to be rather unfortunate, because although the hands and feet appear swollen there is no true œdema. Indeed, in an annotation in the 'Lancet' (London, 1918, i, p. 849), this question of œdema led to the confusion of *erythrœdema* with cases of "general œdema following gastro-enteritis in children." Nevertheless the name "*erythrœdema*" should be retained until more information as to the nature and ætiology of the condition in question is forthcoming. (It should be remembered that doctors retain the name "*myxœdema*" for a disease in which there is generally no true œdema.)

I have obtained information from the article on "*Erythrœdema*" by A. J. Wood in the 'Medical Journal of Australia' for February the 19th, 1921 (i, p. 145), and from the leading article on the subject in the same number of the Journal (p. 155).* The term "*erythrœdema*" was first employed in February, 1914, by Dr. H. Swift, in a paper read before the Section of Diseases in Children at the Tenth Australasian Medical Congress, for a syndrome in very young children characterised by extreme fretfulness, neuro-muscular disturbance, sleeplessness, and a red rash involving the hands and feet and at times other parts of the body. This syndrome had already been observed by Dr. Swift and some other Australian physicians, but had not previously been described. Dr. Snowball had spoken of the children "with raw-beef hands and feet," and Dr. Clubbe and others

* See also 'Lancet,' London, 1918, i, pp. 611, 684, 849; and 1921, i, p. 871.

had usually referred to it as *the pink disease*. Dr. A. J. Wood collected notes of 40 cases and Dr. F. H. Cole contributed records of 51 cases. According to Wood "the child is carried into the surgery with the head bent down generally into its mother's chest, or frowning with half-closed eyes, as though it dreaded the light, and refusing to look up. . . . Some patients do not seem able to rest, scratching at their feet or pulling at their hair (trichotillomania) or ears, frequently making them bleed. . . . In some cases the red, swollen appearance of the hands is an early symptom, and, if present, is absolutely pathognomonic." The children are worn out by want of sleep and the intolerable irritation of the skin of the body, hands and feet. They sometimes become very vicious, scratching and biting at their mothers' faces. After a week or two the skin may begin to act freely, and a profuse, extremely irritable miliarial sweat-rash appears over the front and back of the trunk. It is this pink sweat-rash which led to the affection having been termed "the pink disease" by Clubbe and others. Somewhat later, from two weeks to five months after the onset of the fretfulness, the redness of the hands and feet appears. Wasting is an early symptom and the muscles become soft and weak; "the neck muscles do not appear able to support the head properly, and in older children the power of sitting up or walking is lost early in the disease." Stomatitis is frequently present, and the teeth in severe cases may become loose and even fall out. Photophobia occurs in many cases; it may pass off and return several times. Marked ulceration of the skin may occur from scratching or rubbing. In one case contraction occurred by the healing of a deep ulcer on the palmar surface of two fingers. "The loss of finger-nails and toe-nails is by no means rare; one patient shed his toe-nails five or six times in the course of his thirteen months' illness." Constipation is more frequent than diarrhoea.

Of the 88 cases collected by Dr. A. J. Wood and Dr. F. H. Cole 52 were males and 36 were females. The ages of the patients varied from 4 months to 3½ years, but in 57 cases the patients were between the ages of 9 and 18 months. Death occurred in 5 out of 91 cases, in one case from sudden heart failure, in the other four cases from broncho-pneumonia. Post-mortem findings did not throw much light on the nature and causation of the erythrœdema.

There can be no doubt that the cases in young children in America, described during 1920 and 1921 as *acrodynia* or pellagra, or as resembling acrodynia or pellagra, by W. Weston,* A. H.

* W. Weston, "Acrodynia," 'Arch. of Pediatrics,' New York, 1920, xxxvii, pp. 513-522.

Byfield,* H. C. Cartin,† P. W. Emerson,‡ J. Zahorsky,§ and probably by others, are of the same nature as the Australian "erythroedema" cases. Dr. Weston's paper was based on 8 cases in the practice of Dr. W. F. Patrick. Dr. Byfield's paper was based on 17 cases. All of his patients were under 4 years of age, five of them being under one year. Some of the cases were mild, but others ended in death. In one fatal case, complicated with tuberculosis, a post-mortem examination showed "involvement of an occasional anterior horn-cell of the spinal-cord, gliosis about the central canal, and œdema of the sensory roots." These findings however, can hardly be accepted without confirmation as representative of the disease. Byfield points out that the disease is differentiated from pellagra by lack of sharp demarcation in the skin lesions, by the uniformly early age of the patients, etc.|| He agrees that his cases somewhat resemble the descriptions of acrodynia. He might have added that the uniformly early age of his patients was likewise against the diagnosis of acrodynia. He suggests that the disease with which he is dealing is a post-influenzal radiculitis or sensory polyneuritis; but surely the connection of these cases with influenza cannot as yet be established.¶

In Byfield's cases "a symmetrical involvement of the fingers and toes, recurring at intervals of a fortnight or so, or even tending to be more or less constant, was one of the most striking characteristics of the trouble. . . . Confluent erythema was the rule on the distal phalanges. Desquamation, most marked at the tips of the fingers and toes, growing less toward the region of the wrists and ankles, was often present. The feet were only slightly less involved than the hands. . . . In two of the cases the cheeks and the tip of the nose were involved." Byfield remarks that involvement of the genito-urinary tract was manifested by the frequent presence of pyelitis, though this was never extreme and usually yielded to treatment. Acetonuria, probably connected with the under-nutrition and anorexia, was not rare. *The Wassermann reaction was always negative.*

Byfield's case 8 is the one that most nearly resembled my case. The patient was a boy, aged 10 months, who was admitted to hospital

* A. H. Byfield, "A Polyneuritic Syndrome resembling Pellagra-Acrodynia seen in Very Young Children," 'Amer. Journ. of Diseases of Children,' 1920, xx, pp. 347-365.

† H. C. Cartin, 'Pennsylvania Med. Journ.,' 1921, xxiv, p. 287.

‡ P. W. Emerson, 'Journ. Amer. Med. Assoc.,' 1921, lxxvii, p. 285.

§ J. Zahorsky, "Pellagra or Acrodynia in Children," 'Journ. Missouri Med. Assoc.,' 1921, xviii, p. 153.

|| In genuine cases of pellagra the flexor surfaces of the hands and feet are not so much affected as the extensor surfaces.

¶ In regard to the suggested relation of "acrodynia" to epidemics of influenza, compare F. G. Crookshank, 'Medical Press,' London, 1920, clxi, pp. 495-496.

after four months' illness. The nose and cheeks showed large red patches—much as in my case—according to the coloured plate illustrating Byfield's description. The hands and feet were red and cold. The tendon reflexes were present. As in my case, there was a decided nasal complication present. Diphtheroid bacilli were detected, but no circulating diphtheria toxin was found in the blood. After six weeks of observation and dietary treatment (no gavage) the tonsils and adenoids were removed, and the nasal sinuses, which were found to contain pus, were drained. A rapid cure was not achieved, but the improvement following the operation as far as the paræsthesia and skin eruption were concerned seemed more distinct than that corresponding to the dietetic treatment. Finally the child recovered completely.

My case was a much more severe one than Byfield's. The disease apparently commenced in the first month of life, and lasted till the patient's death at $3\frac{1}{4}$ years of age. The cheeks, chin, nose and ears (pinnae) were affected (see Fig. 1) as well as the hands and feet. The soles of the feet were red, slightly desquamating, and deeply ulcerated (see Fig. 3). The hands were mutilated by the loss not only of nails, but of portions of fingers also (see Fig. 2).

Incidentally, I should mention here that I am indebted to my friends Dr. Hugh Thursfield and Dr. D. H. Paterson for demonstrating to me (March the 11th, 1922) a little girl, aged 1 year, in the Great Ormond Street Children's Hospital (London), with symptoms almost exactly corresponding to (and possibly more striking than) those in Dr. Byfield's case 8. [See following paper in this issue by Dr. Thursfield, p. 27.—ED.]

I cannot conclude without a short reference to *acrodynia*, a term which has been much used in the recent description of erythrœdema cases by American authors. Acrodynia (which means "pain in the extremities") was the name first given by Chardon (1830)* to the remarkable epidemic disease, which, commencing during the winter of 1827–1828 at Paris, had by the end of summer, 1828, attacked about 40,000 persons.† During the following autumn and winter the cases

* Chardon fils, "De l'acrodynie, ou épidémie qui a régné à Paris et dans les environs depuis l'année 1828," 'Revue Médicale franç. et étrang.,' Paris, 1830, iii, pp. 51, 374.

† For general accounts of acrodynia cf. 'Dictionnaire Encyclop. des Sciences Médicales,' Paris, 1869, first series, vol. i, pp. 654–664; August Hirsch's 'Handbook of Geographical and Historical Pathology,' English translation, New Sydenham Society, 1885, vol. ii, pp. 248–252; Radcliffe Crocker's 'Diseases of the Skin,' London, third edition, 1903, vol. i, p. 117. There are also accounts in Quain's 'Dictionary,' Fagge's 'Medicine,' etc. A most excellent contemporary account is that by Genest, "Recherches sur l'affection épidémique qui régné maintenant à Paris," 'Arch. Gén. de Méd.,' Paris, 1828, xviii, pp. 232–251, and 1829, xix, pp. 63 and 357.

became sporadic, but in the spring of 1829 the disease became again epidemic in Paris and its environs. It died out in the winter of that year. Alibert* called it *epidemic erythema*, regarding it mainly from the dermatological point of view. It is described as a dermatitis affecting particularly the palms of the hands and the soles of the feet, accompanied by formication, anæsthesia or hyperæsthesia, with stinging and smarting pains; the pain might extend over the whole body. Gastro-intestinal disorders were often present. The skin was at first bright red, then deeper tinted and brown, with subsequent pigmentation and desquamation, much cuticle occasionally being shed in one piece. Sometimes small papules, pustules and blisters formed. In some cases paresis, or even paralysis, of the lower extremities occurred. The disease tended to run a chronic course of several weeks, and in a few instances the same person was attacked more than once.

A little while ago, on looking up the subject of acrodynia, the idea occurred to me that it might be an epidemic of arsenical poisoning similar to the epidemic of arsenical poisoning which occurred in England during the years 1900 and 1901 amongst beer-drinkers.† The suggestion that it was a form of chronic ergotism has been generally rejected. Recently Prof. Karl Petren (Sweden) has written an article in the '*Revue Neurologique*,‡ pointing out the great probability of the famous acrodynia epidemic having been due to arsenical poisoning. In recent years arsenical poisoning is known to have actually occurred in French wine districts, in connection with the use of arsenical preparations for destroying parasites by which vines often become infested.§ In the English epidemic among beer-drinkers it was subsequently proved that the beers thus contaminated had been brewed from glucose and invert sugar manufactured by a firm that, in its preparation, had used sulphuric acid largely contaminated with arsenic.|| It is rather

* Alibert, '*Monographie des dermatoses*,' second edition, Paris, 1835, pp. 11-13.

† Cf. E. S. Reynolds, "Epidemic Outbreak of Arsenical Poisoning occurring in Beer-Drinkers," '*Medico-Chirurgical Transactions*,' London, 1901, lxxxiv, pp. 409-452; H. G. Brooke and Leslie Roberts, "The Action of Arsenic on the Skin as observed in the Recent Epidemic of Arsenical Beer Poisoning," '*Brit. Journ. Derm.*,' London, 1901, xiii, p. 121; F. H. Barendt, "The Skin Lesions due to the Presence of Arsenic in Beer," *ibid.*, p. 148.

‡ Karl Petren, "L'Acrodynie: une intoxication arsenicale," '*Revue Neurologique*,' Paris, 1921, xxviii, pp. 812-814.

§ Cf. Paul Cazeneuve, "Sur plusieurs cas d'intoxication mortelle par l'arsenic dans les milieux viticoles," '*Bull. Acad. de Méd.*,' Paris, 1921, 3^e sér., lxxxv, pp. 660-671.

|| J. Dixon Mann, '*Forensic Medicine and Toxicology*,' fifth edition, London, 1914, p. 488.

surprising that the occurrence of herpes zoster seems not to have been recorded in the great Paris epidemic of acrodynia; for, it should be remembered, in the English epidemic among beer-drinkers it was the occasional occurrence of herpes zoster in patients that first led E. S. Reynolds to suspect that arsenic was the cause of the symptoms.

Dr. W. Weston,* in connection with acrodynia, refers to a report by Dr. Henry Strachn, in 1888, on 510 cases of supposed "malarial multiple neuritis" observed in the Public Hospital of Kingston in Jamaica. I wonder whether the symptoms may have been really due to chronic arsenical poisoning in that epidemic.

ADDENDUM.

Dr. J. D. Rolleston and Mr. H. E. Powell have kindly drawn my attention to the case of a boy, aged 18 months, described by Dr. M. C. Field, in the 'Archives of Pediatrics' for February, 1922 (vol. xxxix, p. 116), as an example of "erythrœdema," according to the descriptions of Swift, Wood and others in Australia. Dr. Field regards erythrœdema as the same syndrome as that described by Weston, Byfield and others in America, under the heading of "acrodynia," or a syndrome "resembling pellagra or acrodynia."

DERMATO-POLYNEURITIS (ACRODYNIA: ERYTHRŒDEMA).†

By HUGH THURSFIELD, M.D., F.R.C.P.,

in collaboration with

D. H. PATERSON, M.B., M.R.C.P.

At the beginning of February in the present year a girl baby, aged 10½ months, was sent to me at the Children's Hospital, Great Ormond Street, by Dr. Amsler, of Eton, for an opinion as to her condition. I found that she had a history of an obscure illness about six weeks previously, and was then wasted, with some albuminuria and marked desquamation of the hands and feet. I thought it most likely that she had had an attack of scarlet fever, and that this was the sequel. About a month later Dr. Mann, of Staines, who had charge of the child, asked me to see her again, since it had become clear that this

* W. Weston, *loc. cit.*, p. 519.

† The case was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine on March the 24th, 1922.

diagnosis was incorrect. Since I had seen her she had had one or two exacerbations of the desquamation, had wasted rapidly, had become difficult to feed, and had become more and more obviously mentally affected; so that on this second occasion I recognised that I had made a mistake, and that I was confronted by a condition of which I had had no previous experience. I arranged to take the child into hospital in the hope that some of my colleagues would recognise the disorder. At my first visit to the hospital after the admission of the child an American visitor, Dr. Colby, of St. Paul, Minnesota, told me that Byfield, of the University of Iowa, had described a similar disease under the title of "Pellagra-Acrodynia." A reference to Byfield's paper showed that his description tallied almost in every particular with the condition of my patient. Since then Dr. Parkes Weber, who is a living encyclopædia of knowledge on the literature of disease, has been good enough to put his knowledge at my disposal, and has referred me to papers by some of our Australian colleagues, who recognised and described what appears to be the same disease under the title of "Erythroedema, or the Pink Disease," several years before the American observers. It is an open question whether some of the older clinical observations recorded under the name of "epidemic erythema" really relate to the same disorder.

The history of the present patient and the description of her disease are as follows: She had been breast-fed up to the age of 8 months, and until the age of 9 months she was a perfectly healthy child—indeed unusually advanced for her age. On the December 19th, 1921—that is, three months ago—she became ill, had some vomiting for three days and was feverish. After a few days' interval in which she seemed to be normal, from a bright, cheerful child she became fretful, whining and loath to take food. She remained much the same, though still wasting, till at the beginning of February desquamation of the hands and feet set in abruptly with much redness and swelling of the extremities, and a singularly offensive mouse-like odour which reminded me of the smell of favus. This was the condition in which I saw her first—thin, fretful and wasted, with the desquamation described, some albuminuria, and a history dating back some six weeks. She was not at that time obviously mentally affected.

During the next three weeks the severity of the skin-lesions waxed and waned, but the chief changes were the rapid alteration of the mental faculties, and the development of an extreme hypotonia of the muscles with a retention of the normal reflexes. It was stated by her mother that she moaned and screamed all day and night, that

she was tremulous, that her eyes rolled, and that three days before I saw her for the second time she had squinted.

On admission to the hospital the child's appearance was striking. Her face showed two patches of colour on the cheeks, and a reddened nose, with a patch of branny desquamation on the forehead. She had two small shallow ulcers on the dorsum of the tongue, but her mouth was otherwise clean. The fauces and tonsils were normal, and the teeth (sixteen) and gums were natural. She had no anæmia and no evidence of rickets. The hair was thinned over the scalp, especially over the right side of the head. She had a slight erythematous rash over the buttocks. Her mouth was often opened widely with a gape resembling that of a young nestling.

The extremities were cyanosed, slightly cedematous and cold, with the skin peeling off the fingers and toes in large flakes; the finger-nails were not affected, but the toe-nails appeared to be deformed by the inflammation. The redness, cyanosis and desquamation were limited to the hands and feet, and faded off rather gradually, but above the wrists and ankles the skin had an almost normal appearance. The offensive smell was still present, though less marked. The skin-lesions obviously caused her a good deal of irritation, but she did not rub or scratch so furiously as a child with eczema does.

With the exception of her neuro-muscular system her general condition was good. There was nothing abnormal in the heart, lungs or abdominal organs; the cervical glands alone were palpable, and those quite small; the joints and bones were normal. The urine contained a small amount of albumin, but no cells or casts. She swallowed well, and took food readily; her bowels were open normally. She had no fever, and her pulse-rate varied from 80–100.

As regards her neuro-muscular system, she had no paralysis, all movements could be performed, but the tonelessness of the muscles was striking: she could hold her head up and sit up with marked lordosis, but could raise herself with difficulty, and could not stand at all. All muscular movements were performed with extreme slowness, but there was no obvious tremor and no inco-ordination. When awake—and she slept very little even at night—she kept up a slow continuous movement, falling forward on to her face, and then slowly raising the head and bringing herself into a sitting position with a circular movement, repeating this series of movements frequently. The legs were moved but little, most of the movements being confined to the body and arms and head. When her attention was attracted she appeared to take an intelligent interest, but after a few moments an expression of pain showed on her face by a contraction of the

muscles and a low cry, with the wide gaping movement of the lower jaw.

The reflexes were all present and normal, except that on a few occasions the left plantar reflex was definitely extensor. Occasionally also she appeared to have spasmodic rigidity of the legs and arms, but this was momentary, and ordinarily the limbs were unusually hypotonic and lax. The electrical reactions were normal.

Sensation in a child so young and so abnormal is unusually difficult to test, but we formed the opinion that in the extremities from the elbow to the fingers and from the knee to the toes sensation to a pin-prick was markedly defective. On the body and face she appeared to feel normally, but when pricked in the ear for blood-count purposes she appeared not to feel it at all.

Her cerebro-spinal fluid was normal in every respect, and there was no change in the fundi of her eyes. Her blood-count was : Red cells 5,127,000, leucocytes 18,200, polymorpho-nuclear cells 58 per cent.= 10,500; no abnormal cells seen; hæmoglobin 90 per cent. There were no diphtheria bacilli in a swab taken from the naso-pharynx, and no abnormal organisms in the stools.

To summarise : A previously healthy child is suddenly attacked by an undiagnosed, probably febrile, infection. After some weeks of ailing, fretfulness and anorexia she develops marked skin, neuromuscular and mental symptoms, resembling in many respects the condition seen in some cases of epidemic encephalitis. The condition is stationary or possibly slowly improving.

The disorder, or an affection very closely akin, was described by Dr. Swift, of Adelaide, in 1914, and has been more recently reviewed by Dr. Jeffreys Wood, of Melbourne, under the title of "Erythroedema, or the Pink Disease." The descriptions given by these writers leave no doubt in my mind that they are dealing with the disorder with which my patient is affected. Later in America several authors have written upon the disorder, notably Weston and Byfield. The paper of the last-named is, on the whole, the best account which I have seen. The writer, however, calls the disease by the cumbrous title of "Pellagra-Acrodynia." The name "acrodynia" appears to have been adopted in America, for several other cases have been recorded by this title. It is, I think, unfortunate, since it ignores what appears to me to be one of the principal features of the complaint, namely, the neuro-muscular and mental symptoms. I have ventured to style this case one of dermatopolyneuritis—a name which I am not prepared to defend at any length, but which appears to me to be more descriptive of the condition than "acrodynia." This last

seems to be better fitted to a case which Dr. Parkes Weber described last year as "A Condition somewhat resembling Lupus pernio." I cannot agree that this was an example of the same disease from which my patient is suffering, though I understand that Dr. Weber is of that opinion. [See previous paper in this issue by Dr. Weber, p. 17, —Ed.]

As to its causation, there is a disposition to regard it either as a "deficiency" disease or as a post-influenzal polyneuritis. In this connection it is interesting to record that ten days before the attack began in my patient her mother had an attack which was diagnosed as influenza.

In my patient I am not at present certain how far the brain is affected. The mental attitude is striking, and the apparent misery of the child corresponds exactly to Byfield's description; yet apart from the above-mentioned spasmodic rigidity, which now appears to have passed away, there is no evidence of involvement of the upper motor neuron, and the mental condition is no worse than one sometimes sees in other severe infections, *e.g.* in an acute pyelitis, occurring in so young a child.

The prognosis in Byfield's cases and in a more recent example recorded by Emerson is good; complete recovery appears to be the ultimate result. I hope that it may be so in the present instance.

P.S.—Since the above was written the patient has died of acute intussusception. Post-mortem examination failed to reveal any gross abnormality.

REFERENCES.

- BYFIELD.—'Amer. Journ. Child. Dis.,' 1920, xx, p. 347.
 EMERSON.—'Journ. Amer. Med. Assoc.,' 1921, lxxvii, p. 285.
 SWIFT.—Australasian Med. Cong., Child. Section, February, 1914 (quoted from Jeffreys Wood, *loc. cit.*).
 WEBER.—'Brit. Journ. Derm. and Syph.,' 1921, xxxiii, p. 228.
 WESTON.—'Arch. Pediat.,' 1920, xxxvii, p. 513.
 JEFFREYS WOOD.—'Med. Journ. Australia,' 1921, i, p. 145.

POSTSCRIPT BY DR. D. H. PATERSON.

I might add to Dr. Thursfield's paper the case recorded by Dr. Manning Field in the 'Archives of Pediatrics' of February of this year, under the title of "Erythrœdema." In his case—a child, aged 18 months—the complaint was of restlessness, irritability and insomnia, diffuse redness and swelling of the hands and feet, which were always cold, constant low fever and diffused sweats, itching of the whole body, especially the hands and feet.

The feeding and previous history gave no information. In the

present illness, he says, two months ago a small papular eruption occurred on the hands, which was accompanied by itching, and followed by diffused redness and swelling. There was fever at this time with diffused sweating and a marked change in the disposition—restlessness, irritability and insomnia.

The swelling, redness and itchiness of the feet increased, and caused much scratching and rubbing. The child would assume a crouching position in bed, and burrow his head in the pillow. On admission the skin of the feet had a macerated appearance, and one loose nail was present. The red count was $5\frac{1}{2}$ millions, the hæmoglobin was 94 per cent., white cells 18,000, polymorphs 54 per cent. The blood-culture, urine, Wassermann and Pirquet reactions and stools were all negative; anorexia was marked. Temperature 98° to 104°F .

Field states that about 100 cases have been reported to date, and leans towards this being an infective sensory polyneuritis rather than a deficiency disease.

In the one case which was complicated by tuberculosis, and which proved fatal, reported by Byfield, the post-mortem examination showed involvement of an occasional anterior horn-cell of the spinal cord, gliosis about the central canal and œdema of the sensory roots.

ACUTE INTESTINAL OBSTRUCTION DUE TO INSPISSATED MECONIUM.

By E. E. HUGHES, Ch.M.Manch., F.R.C.S.Eng.,

*Visiting Surgeon, Manchester Children's Hospital; Honorary Surgeon,
Ancoats Hospital, Manchester.*

In the 'Journal of the American Medical Association,' 1919, lxxiii, p. 1882, G. M. Ballowa and R. E. Brennan record a case of intestinal obstruction due to inspissated and impacted meconium, and they state that they could find no record in the literature of a similar case.

The following notes of an identical case which has come under my own notice show that the condition is not unique.

The patient, when first seen by me, was an apparently healthy male child, three days old. The history was that the child had been born at full term by normal labour, and that since birth it had passed no meconium and no fæces.

For the past 24 hours the child had vomited several times, the vomit consisting of milk and bile. On examination the child was well developed and showed no external congenital abnormalities. The abdomen was obviously distended, presented no rigidity, and was tympanitic on percussion. The anal orifice was normal, and the rectum, on digital examination, was found to be of normal calibre and quite devoid of even a trace of meconium. A diagnosis of acute intestinal obstruction, due, probably, to some congenital malformation of the large intestine, was made. Operative interference was deemed inadvisable and the child died a few hours later.

The post-mortem examination showed a large mass of inspissated meconium of solid consistence completely blocking the lumen of the transverse colon. Immediately proximal to the obstruction was a perforated stercoral ulcer $\frac{3}{4}$ in. in diameter, through which a quantity of liquid meconium and fæces had escaped into the peritoneal cavity, producing general peritonitis.

Other masses of inspissated meconium were found in the descending and pelvic colon.

There was no congenital malformation of any part of the intestinal tract.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, October the 28th, 1921.

The President, Sir ROBERT JONES, K.B.E., in the Chair.

Case for Diagnosis.—Dr. J. PORTER PARKINSON showed a girl, aged 13 years, admitted into hospital with history that cheeks had been swollen for ten weeks; left side began first with discharge from the left ear, then right side began to swell, and finally parts beneath chin. She had headaches and hot sweats.

On admission there was considerable swelling of soft tissues of cheeks and below chin. Swellings hard and hot to touch. There were also similar swellings on backs of both arms. Enlarged glands could be felt in both axillæ and in supraclavicular regions. Slight discharge from left ear. Slight fever on admission, which abated in a few days. Heart, lungs, and abdominal organs were healthy. Hypodermic needle introduced into swelling on culture grew Gram-negative bacillus resembling Vincent's fusiform bacillus.

Swellings had become considerably reduced during past fortnight.

Splenomedullary Leukæmia.—Dr. E. BELLINGHAM SMITH showed a girl, aged 13 years, admitted to hospital May the 25th, 1921. Mother stated that in October, 1920, the child had a severe hæmorrhage following extraction of teeth. In December, 1920, had pain in left side; had become paler and thinner since that date.

On examination: Fairly well-developed girl, with old hare-lip and partial cleft palate; no marked anæmia. The heart and lungs normal, but heart displaced upwards, the apex-beat being outside the nipple in the fourth space. Several small shotty glands in neck, axillæ and groins. Spleen enormous, occupying whole of left side of abdomen, and extending downwards almost to pubis. Below umbilicus it extended $1\frac{1}{2}$ in. to right of mid-line. Liver did not appear enlarged. Blood-count showed: Red cells, 4,075,000; white cells, 652,000; hæmoglobin, 55 per cent. A differential count showed 88 per cent. myelocytes; polymorphs, 5 per cent.; lymphocytes, 5 per cent.; mast cells, 2 per cent.

On June the 11th, 1921, treatment commenced with collosol antimony, 1 dr. *bis die* by mouth in conjunction with X-ray applications to spleen and long bones once a week. On June the 22nd, 1921, collosol antimony given intramuscularly, beginning with $\frac{1}{2}$ c.c. twice weekly, to be steadily increased.

On June the 22nd, 1921, blood-count showed: 4,750,000 red cells; 593,000 white cells; hæmoglobin, 60 per cent. Differential count: Polymorphs, 36 per cent.; myelocytes, 51 per cent.; lymphocytes, 4 per cent.; mast cells, 5 per cent.; hyaline cells, 4 per cent.; normoblasts, 1 per cent.; nucleated red 0.5 per cent.

On August the 25th, 1921, white cells had fallen to 170,000.

Collosol antimony continued up to 10 c.c. twice weekly until September the 13th, 1921. On September the 21st, 1921, sent away for three weeks' convalescence. Blood-count on return (October the 14th, 1921): Red cells, 5,000,000; hæmoglobin, 70 per cent.; white cells, 160,000. Differential count: Polymorphs, 70 per cent.; myelocytes, 8 per cent.; transitional, 6 per cent.; lymphocytes, 10 per cent.; mast cells, 4 per cent.; eosinophils, 2 per cent.

The spleen was smaller, and child seemed well except that she had lost weight recently.

Syphilitic Infantilism with Splenomegaly.—Dr. E. BELLINGHAM SMITH also showed a girl, aged 17 years, who had come to hospital on September the 30th complaining of pain in left leg of one month's duration.

On examination: Patient appeared to resemble a child of 11 or 12 years. No development of breasts, axillary or pubic hair, and menses had never appeared. Head bossy, and upper incisors notched and peg-shaped. Palpation of abdomen revealed enormous spleen, occupying whole of left side of abdomen and extending downwards and forwards below umbilicus to right of the mid-line. Liver readily palpable two finger-breadths below the costal margin. At lower end of left femur was a large swelling, somewhat tender to touch and suggesting a syphilitic periostitis.

The family history showed that the mother had nine pregnancies, of which six children were alive; one was a stillbirth and two were miscarriages.

The Wassermann reaction in patient was positive.

The blood-count showed 4,880,000 red cells, some poikilocytosis and vacuolation. White cells, 3940; polymorphs, 72 per cent.; lymphocytes, 18 per cent.; mononuclears, 8 per cent.; hæmoglobin, 55 per cent.

X-ray photographs of left femur showed a well-marked periostitis.

Case of Œsophageal Stricture.—Dr. E. BELLINGHAM SMITH showed a boy, aged 4 years 10 months, who had been admitted to hospital in June, 1921, with history of persistent vomiting since 9 months of age. Patient was a full-time baby and weighed 9 lb. at birth. No previous illnesses or history of swallowing corrosives. He vomited all solid food immediately after administration, and frequently vomited liquids. Constipation severe.

On examination: Very wasted child, weight 15 lb. 9½ oz., height 33 in. There were no abnormal physical signs in lungs, chest or abdomen. For some days after admission he vomited all solids and semi-solids, which were returned unaltered almost immediately after ingestion.

X-ray photograph with barium showed obstruction to passage of meal about level of seventh dorsal vertebra, no Œsophageal pouch, but an obstruction, apparently a stricture, about an inch in length, just above cardiac orifice of stomach.

Mr. Lake had passed an Œsophagoscope, and reported that there was definite resistance to the passage of the Œsophagoscope about 2 in. above the cardiac orifice and just above the stricture a small shallow ulcer. Bougies 1 to 5 were passed, but a No. 6 could not be introduced.

After dilatation there was distinct improvement, and a fortnight later Mr. Lake succeeded in further dilating to No. 8. Since then progress had been uneventful, and the weight was now 18 lb. 14 oz.

The Wassermann reaction was negative.

Case of Recurrent Purpura with Joint Lesions and Fractures.—

Dr. ERIC PRITCHARD and Mr. B. WHITCHURCH HOWELL showed a boy, aged 9 years, whose history was as follows: Swelling of hands and elbows when aged 2 years; treated as rheumatism; legs affected later. At 6 years had mouth-bleeding. Family history negative. In 1919 treated for tubercle of right knee and left ankle. First seen by Mr. Howell in June, 1920, after attack of scarlet fever. Right knee: Slight limitation of movement, especially full extension, with thickened synovial membrane. Left foot in position of talipes equino-varus with periarticular thickening. Definite bruising of right leg, with petechiæ on abdominal wall with history of recent hæmoptysis. Admitted to medical ward. Diagnosis: Hæmophilia. Treated with hæmostatic serum, horse serum, with very marked local reaction; coagulation time 3 mins. 5 secs. December the 17th: Much hæmorrhage in buttock following injection of 25 c.c. of horse serum. December the 30th: Fell off chair and broke right femur and tibia. X ray: Subperiosteal fracture at lower third of femur; of tibia at upper third. Treated by extension on Thomas's splint. June the 23rd, 1921: Hæmorrhage into right elbow-joint. October the 6th: Right lower limb 1 in. longer than left; treated by ½ in. thickening on left sole and heel. October the 22nd: Readmitted with relapse in left ankle.

Specimen of Congenital Malformation of Œsophagus.—Mr. C. E. SHATTOCK.—The child was aged 10 days, had lost 2 lb. in weight since birth and regurgitated all food immediately after swallowing. The stomach and intestines were much distended with air. Autopsy: The patent lower end of the Œsophagus extended upwards from the cardiac orifice to open into the trachea about the bifurcation. The upper portion of the Œsophagus ended blindly about this level.

Duodenal Ulcer in Infancy.—Dr. DONALD PATERSON read a paper on this subject, the conclusions of which were as follows: (1) Duodenal ulcer is

a rare condition in infants, but more careful examination of the duodenum in marasmic infants may show it to be commoner than is at present admitted. (2) Ulcers may be present in *melæna neonatorum*. In older infants they may follow on any gastro-intestinal upset. (3) They may certainly complicate extensive septic burns or septicæmia. Tuberculosis is the common cause of duodenal ulcer in older children. (4) The diagnosis of duodenal ulcer is difficult and usually not made. (5) Duodenal ulcer may be successfully treated by operation.

Case of Renal Dwarfism.—Dr. DONALD PATERSON (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1921, xviii, p. 186).

Friday, November the 25th, 1921.

The President, Sir ROBERT JONES, K.B.E., in the Chair.

Case of Dwarfism.—Dr. E. A. COCKAYNE showed a girl, aged 7 years 8 months. Parents healthy and of average stature. The girl was not small at birth and progress was normal until three years of age, when growth ceased suddenly. No growth took place for the next 3 years, although she was given thyroid extract $\frac{1}{2}$ gr. twice a day for the last 3 months of that period. At 6 years of age she was exactly the same height as her younger sister aged 3 years. One tablet of triglandin was then given 3 times a day, and she grew $\frac{1}{2}$ in. in the first 2 months and a further $\frac{3}{4}$ in. in the next 2 months. Growth entirely stopped for the next 4 months, but during the next month she grew another $\frac{1}{2}$ in., although she had had no drug treatment for 9 weeks. She was stationary again for 6 months, then grew $\frac{1}{4}$ in., and has been stationary again for the last 5 months. For the last 7 months she has had triglandin again. She was short and broad with rather a broad flat face, and had a deep voice. There was no mental defect. No evidence of myxœdema or achondroplasia. *Sella turcica* normal. Blood-pressure 70 systolic. No albuminuria. Wassermann negative in mother and child.

Case of Cardiospasm.—Dr. E. BELLINGHAM SMITH showed a male infant, aged 1 year 10 months. Full-time infant, breast-fed for two months, then on cow's milk and Nestlé's. At 5 months of age began to vomit. Had vomited brown fluid like chocolate. Could keep down fluids, but vomited all solid food. Family history: two other children alive, aged $8\frac{1}{2}$ and 10 years. Four miscarriages. Wassermann reaction in child negative. On examination, fairly well-developed child, but pallid with poor nutrition. Heart, lungs, abdomen revealed nothing abnormal. Since admission to hospital had vomited all solid food but would retain liquids and thickened feeds. His weight to-day, November the 25th, was 2 lb. less than on admission on August the 13th, 1921. Child seemed hungry and seized ravenously any bread and butter, but after two or three mouthfuls the bread and butter was returned unchanged.

The passage of soft œsophageal tubes had not revealed any obstruction, and a barium meal on two occasions had appeared to flow readily into the stomach.

Case of Gumma of the Liver and Scleroderma of Face.—Dr. E. BELLINGHAM SMITH showed a girl, aged 12 years. Admitted to hospital

for pain in the abdomen of one year's duration. On admission a very undersized child, 3 ft. 9 in. high, and weight 3 st. 4 lb. Complexion sallow, frontal bones bossed, facies expressionless; skin of forehead, nose and cheeks glistening and inelastic; no wrinkling took place on smiling or frowning. Nose was flattened and there was a bilateral discharge from the nostrils. On examination of the abdomen a large mass about the size of an orange presented itself in the epigastrium, and rather to the right of the mid-line. This tumour was situated in an enlarged liver, which reached almost to the umbilicus. The tumour was tense and elastic; between it and the right costal margin could be felt a smaller and harder mass in the liver substance. The blood-count showed no abnormal changes. The Wassermann reaction was positive. Three weeks' treatment with mercury and iodide had caused the large tumour to almost disappear, but the liver was still greatly enlarged and small masses can be felt. The sclerodermatous condition of the face was unaltered.

Case of Fracture at the Elbow-Joint.—Mr. B. WHITCHURCH HOWELL showed a boy, aged 9 years, who had fallen on his left hand on August the 4th, 1921, and sustained a fracture of the elbow-joint with a dislocation of the head of the radius. X rays showed: (1) Separated epiphysis of the lower end of the humerus, (2) fractured olecranon process, (3) fracture of the coronoid process. Treatment consisted in acute flexion by the "collar and cuff" method of Sir Robert Jones, in spite of the fracture of the olecranon process. Present condition, November the 11th, 1921: Full and painless flexion and supination. Extension incomplete by 30° (extension should be complete by January or February, 1922). Union of the olecranon.

Case of Morbilli Bullosi.—Miss E. MORTON (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1921, xviii, p. 188).

Case of Persistent Jaundice.—Mr. G. A. LEVISEUR showed a case in a girl, aged 5 years 7 months, which was of interest owing to the long-continued jaundice (for nine weeks), the fluctuation of its intensity and the splenic enlargement.

Case of Juvenile General Paralysis.—Dr. BERNARD MYERS showed a girl, aged 11 years, who had complained of inability to walk properly for the last few months. The legs and arms were stiff, especially the left arm and leg; the knee-jerks were distinctly increased, especially the left. There was a right big toe extensor response and the supinator and triceps jerks were increased on both sides. The walk was spastic. As the upper incisors were notched and the frontal eminences well marked, the Wassermann reaction was carried out and found to be distinctly positive. Antisyphilitic treatment, however, had no effect but the patient became steadily worse. The memory was fairly good when she was first seen, but was now very deficient. She was unable to express herself freely and had a difficulty in pronouncing some words, a thickness and slurring of speech being apparent. Fine tremors of the tongue were noted and occasionally tremors of the lips. At the present time her mental condition was like that of a child of 3 to 4 years of age. She had lately lost control of the bladder and bowel. The pupils were moderately dilated and apparently fixed, with practically no reaction to light or accommodation.

CLINICAL SECTION.

December the 9th, 1921.

Case of Cirsoïd Aneurysm.—Mr. PHILIP TURNER showed a girl, aged 10 years, who had been admitted to hospital for a pulsating swelling under the left eye. It had first been noticed in July, 1921, when the lower eyelid also became dark and discoloured. There had been no pain, and she was not inconvenienced by the swelling. The only history of injury was that on November the 5th, 1920, she had been hit on the left cheek by a firework; this was apparently quite trivial, and only caused for the time some superficial redness of the skin. The left lower eyelid was now slightly swollen and discoloured, giving somewhat the appearance of an old "black eye." The swelling pulsated and a distinct thrill could be felt, most intensely at the infra-orbital foramen; there was also a loud systolic bruit. A tortuous dilated pulsating vessel could be distinctly felt, and there was excessive pulsation in the course of the angular and the transverse facial arteries. There was puffiness extending backwards to the left parotid region. No exophthalmos; conjunctiva of lower lid unaffected; pupils normal. Pressure on angular and transverse arteries did not stop pulsation, but pulsation, thrill and bruit immediately disappeared when the external carotid was compressed.

Postscript.—December the 11th: Common carotid ligatured, the immediate result being diminution of swelling and disappearance of pulsation, thrill and bruit. Later some pulsation returned, and about the tenth day after operation a slight thrill could be felt. On discharge from hospital the swelling was much less, discoloration had decreased and there was a slight degree of pulsation, but no thrill or bruit.

Société de Pédiatrie, Paris.

October the 18th, 1921.

On the Schick Reaction.—MM. LESNÉ and BLAMOUTIER.—The attack of diphtheria is always severe in patients who have shown an intense Schick reaction, so that when a child who has previously had a strongly positive reaction develops diphtheria, large and repeated doses of antitoxin should be given. The Schick reaction shows that passive immunity usually disappears between the twenty-fifth and thirtieth day after injection of serum, and earlier (seventeenth to twentieth day) if any serum manifestations have occurred. The immunity does not last more than ten days after the second injection of serum. The bacilli found in the throat of convalescents who have been injected with serum do not become virulent before the thirtieth day. There is, therefore, a period of five to ten days during which the bacillus is still sensitised by antitoxin, although the patient has lost his immunity and probably during this period the carrier is not contagious. Twenty-eight per cent. of carriers examined twenty-five days after the first injection gave a positive Schick reaction, showing that they had lost their immunity, and 72 per cent. showed a negative reaction.

Changes in the Cerebro-spinal Fluid in Generalised Diphtheritic Paralysis.—M. G. L. HALLEZ and Mme. GÉNIN.—A large number of cases have been published showing the frequency of meningeal reactions in diphtheritic paralysis. The principal changes found in the cerebro-spinal fluid are, first, excess of albumin and sugar, and secondly, a cytological reaction characterised by a more or less marked lymphocytosis. A girl, aged 11 years, developed palatal palsy twelve days after an attack of diphtheria, and sixteen days later paralysis of accommodation and paresis of the lower limbs with loss of the reflexes. The cerebro-spinal fluid on lumbar puncture was constantly clear and under no hypertension. There was at first a slight lymphocytosis which subsequently completely disappeared. The amount of albumin did not exceed 60 cg. per litre and gradually returned to the normal (20–25 cg. per litre). On the other hand, the excess of sugar in the spinal fluid persisted for a long time, the amount varying from 2 g. to 1.25 g. per litre as compared with the normal 0.50 g. per litre. As Marfan showed in 1905, excess of sugar in the cerebro-spinal fluid is one of the most constant changes in the cerebro-spinal fluid in diphtheritic paralysis.

Symptoms of Pineal Disease cured by Injections of Pituitary Extract.—M. DESHAYES.—The patient was a boy, aged 10 years, in whom the symptoms of obesity, precocious sexual development and cerebellar gait suggested the presence of a tumour in the region of the pineal body. There was no evidence of syphilis and the Wassermann reaction was negative. In view, however, of the patient's obesity and polyuria, treatment by pituitary extract was instituted. No effect was obtained from ingestion, but after a month's course of subcutaneous injections the polyuria decreased, the gait improved and the weight diminished.

Treatment of Fracture of the Ulna with Dislocation of the Head of the Radius.—M. P. HALLOPEAU reported three cases in children aged 12, 10 and 8 years respectively, with fracture of the ulna in the upper third or quarter associated with dislocation of the head of the radius. Reduction of the fracture in each case was followed by reduction of the dislocation without any difficulty. All made a complete recovery.

Acute Endocarditis and Aneurysm of the Pulmonary Artery Grafted on Congenital Heart Disease.—M. G. BLECHMANN reported the case of a girl, aged 7 years, suffering from congenital heart disease, who died of pneumococcal septicæmia. The autopsy showed (1) interventricular perforation; (2) stenosis of the pulmonary artery of the infundibular type; (3) an inflammatory aneurysmal dilatation below the stenosis.

Frequency of Syphilis in Infants Suffering from Habitual Vomiting.—MM. A. B. MARFAN and H. LEMAIRE described a condition which was distinct from organic stenosis of the pylorus and did not appear to have any constant relation to any lesion of the stomach. It was found both in breast-fed and in artificially-fed infants. It usually appeared before the third month, sometimes in the first weeks or even the first days of life. It was characterised by vomiting, which recurred after each meal either at once or within an hour, and continued for weeks or months, but was liable to periods of exacerbation or relief. The possibility of congenital syphilis being the cause of this condition induced the speakers to make a careful examination of 57 children suffering from habitual vomiting. They found

that syphilis was certain in 19 cases, or 33 per cent., very probable in 13 cases, or 22·8 per cent., and probable in 7 cases, or 12·28 per cent., so that syphilis was certain or probable in 68 per cent. It was found that after the failure of the ordinary anti-emetic treatment, specific treatment, especially mercury by mouth in the form of 1 in 1000 solution of mercury lactate or mercurial inunction, produced a rapid improvement in 63 per cent. of the cases in which ordinary treatment had failed in ten days' time and a complete cure in about a month.

Congenital Scoliosis.—MM. MOUCHET and ROEDERER showed a case in a girl, aged 3 years, who presented a well-marked left dorsal scoliosis without cervico-lumbar compensation. There was no malformation of the upper or lower limbs, and with the exception of a rather large head the child otherwise appeared normal. No hemivertebra was found on palpation or X-ray examination. The prognosis of congenital scoliosis without bony malformation was very gloomy.

Treatment of Intolerance of Mother's Milk.—M. LAUZE reported the case of a breast-fed infant, aged 3 months, who had suffered from restlessness, insomnia and crying after its feeds since birth. There was great loss of weight. Acting on the recommendation of Weill (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1919, xvi, p. 221), M. Lauze took 10 c.c. of the mother's milk and injected it with all antiseptic precautions into the infant's flank. The symptoms entirely disappeared as the result of a single injection, and the child put on weight.

Fatal Diphtheria in an Infant, aged 1 month, ten days after a Negative Schick Reaction.—MM. BLECHMANN and CHEVALLEY reported a fatal case of diphtheria with multiple lesions (external ear, nose and throat) in an infant, aged 1 month, who had ten days previously given a negative Schick reaction. The speakers pointed out that faucial diphtheria before the age of two months was very rare, as they had found only seven cases in the literature since 1902, including Rolleston's case (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1910, vii, p. 74). The case also showed that one must not depend upon a passive immunity of maternal origin in young infants, but must rigorously carry out the ordinary prophylactic measures in crèches and nurseries whether Schick's reaction was performed or not.

November the 15th, 1921.

Chronic Meningitis with Muscular Atony.—M. R. LABBÉ and Mme. DE LARMINET showed an infant, aged 23 months, in whom the disease was characterised by three stages, the first consisting of meningo-encephalitic symptoms, the second of well-marked myatonia, and the third showing a slight attenuation of the myatonia with transient contractures.

Cure of Hemiplegia and Paraplegia of Uncertain Nature by Specific Treatment.—M. R. LABBÉ and Mme. DE LARMINET reported the cases of two girls, aged 6 and 9 years respectively, one of whom presented hemiplegia and the other paraplegia of subacute, apyrexial and progressive onset. There were no other symptoms of syphilis and the Wassermann reaction was negative in both, but both children showed

immediate and marked improvement on employment of specific treatment, consisting in mercurial inunction and injection of benzoate of mercury and sulfarsenol.

Congenital Icterus from Absence of the Bile-duct.—MM. P. NOBÉCOURT and H. JANET reported a case of congenital icterus which appeared two days after birth and persisted until death, which took place seven and a half months later. At the autopsy complete absence of the hepatic duct was found. The cystic duct was filiform and could be traced to the duodenum. The gall-bladder contained an almost colourless mucous fluid. The liver was hard, dark green in colour and slightly sclerotic. A remarkable feature in the case was the relatively long survival of the patient. As a rule life in such cases was not prolonged beyond a fortnight or three weeks; in rare cases the infant lives three or four months. Although syphilis was often responsible for the defect, there was no indication of it in the present case. Not only were clinical symptoms absent, but the Wassermann reaction was negative in the infant and both parents.

Cyst of the Kidney.—MM. A. MARTIN and J. RÉCAMIER reported a case of retroperitoneal cyst of the left kidney successfully removed from a boy, aged 14 years.

Generalised Osseous Dystrophy.—M. LANCE showed a girl, aged 8½ years, who presented a generalised osseous dystrophy, consisting of deformities, periostoses and repeated fractures of both ulnæ with dislocation of the radii, repeated fractures of the left femur with subsequent elongation of the bone and arthritis of the left ankle-joint. The Wassermann reaction was negative in the child but positive in the mother.

Hodgkin's Disease.—MM. BARBIER, REBÉ and REILLY showed specimens from a case of Hodgkin's disease in a child, aged 7 years, and maintained that a diagnosis between Hodgkin's disease was impossible without a biopsy at the onset, and could only be made at an advanced stage.

Death during an Attack of Acetonæmic Vomiting.—M. H. DORLENCOURT stated that death during an attack of periodic vomiting was rare. Only about fifteen cases had been recorded in the literature, and of these a certain number had to be eliminated as death was due to a secondary complication. He reported the case of a boy, aged 3 years and 2 months, in whom the first attack had occurred at the age of 2½ years, since when there had been a recurrence of vomiting every two months. In the last attack the typical picture of icterus gravis was present with the exception of jaundice. No autopsy could be obtained.

Vesical and Intestinal Bilharziosis in a Child Associated with other Intestinal Parasites.—MM. LEREBoullet and NADAL reported a case in a Mulatto boy, aged 9 years, who presented repeated scanty hæmaturia. The ova of *Schistosomum hæmatobium* predominated in the urine, while the ova of *Schistosomum Mansonii* were most numerous in the faeces. The stools also contained the ova of *Ankylostomum* or *Necator*. Treatment by intravenous injections of emetin produced an excellent result.

Radioscopic Appearances of the Normal Heart in the Child.—M. DUHEM stated that the radioscopic examination of the normal heart in

the child showed certain peculiarities which differentiated it from that of the adult. On the right side the projection of the right auricle was always more marked than in the adult, and the pulsation of the right ventricle was always distinctly visible. The outline of the left ventricle was, generally speaking, more vertical than in the adult, so that the heart in the child occupied a more median position than in the adult.

December the 20th, 1921.

Pyloric Stenosis in the Infant.—M. E. APERT showed specimens from a case aged 4 months which was of interest, first because the disease was relatively rare in France, this being the first example which M. Apert had seen, and secondly because the original diagnosis of pyloric stenosis was subsequently abandoned, but was confirmed at the autopsy.

Removal of a Safety-pin from the Œsophagus by Gastrotomy.—M. P. HALLOPEAU reported the case of an infant aged 4 months which had swallowed an open safety-pin. The ordinary methods for its removal were unsuccessful, as on X-ray examination its point was found to be fixed in the wall of the œsophagus. Deglutition was in no way affected, and the child had taken its feeds normally during the four days in which the pin was in the œsophagus. Gastrotomy was performed under very light chloroform anæsthesia, and the pin was removed by forceps. Subsequent recovery was uneventful.

Hæmatoma of the Submaxillary Region in Hæmophilia: Sudden Death from Œdema of the Glottis.—MM. LESNÉ, POWILEWIEZ and RÉCAMIER reported the case of a boy, aged 15 years, who had suffered from hæmophilia since the age of 19 months. One morning a hæmatoma suddenly developed in the submaxillary region, and death took place from œdema of the glottis due to compression.

Congenital Pseudarthrosis of both Clavicles and Cervical Ribs.—MM. MOUCHET and ERRARD showed a boy, aged 7 years, who presented a pseudarthrosis of both clavicles at the junction of the outer and middle third, thus constituting the first degree of the hereditary osseous dystrophy known as cleido-cranio-dysostosis. The patient did not show any cranial malformation in the parietal fossæ, fontanelles or facial bones. X rays showed the presence of two cervical ribs, one very marked on the left side and the other barely visible on the right.

Vertebral Anomaly and Cervical Rib.—MM. C. ROEDERER and AGENEUR showed a child who had been brought to them for a vicious attitude of the head resembling torticollis and cyphoscoliosis. X rays showed a double cervical rib fairly well calcified, which was a little more oblique than the first rib, and a coalescence of the sixth and seventh cervical vertebrae.

A Fatal Case of Accidental Vaccinia.—MM. GUINON and HALLÉ remarked that the danger of vaccination in children suffering from skin diseases, and especially eczema, was well known. The following case showed that vaccinia might be contracted accidentally and prove fatal without the eruption being generalised. The patient was a vigorous male infant, aged 1

year, whom a doctor had refused to vaccinate owing to the presence of eczema on the face and scalp, though he successfully vaccinated the twin sister who shared the same cot without warning the mother of the danger of contagion. When the patient was seen by Hallé, sixteen days after the vaccination of the other child, the whole of the face and scalp except the tip of the nose, upper lip and point of the chin was covered by confluent pustules almost all of the same size and age and resembling the lesions of vaccinia in the stage of suppuration. There were no lesions on the rest of the body. The general condition was very grave and death took place the next day. Nothing remarkable was found at the autopsy.

Inorganic Murmurs in Infancy.—M. G. BLECHMANN, who reported six cases in infants aged from 6 days to 3 years, came to the following conclusions: (1) Inorganic murmurs may occur in childhood and even in infancy. (2) They may simulate congenital heart disease (valvular lesions or abnormal communications). (3) Neither the systolic character of the murmur nor its propagation justifies a diagnosis of an organic lesion. (4) The study of the orthodiagram may be a valuable help, but further investigations of this kind are needed. (5) Time is the only diagnostic criterion. If the murmur becomes permanent it indicates an organic lesion, while if it disappears (sometimes not until the end of a year) it is inorganic.

Tumour of the Pineal Body.—MM. P. LEREBoullet and BRIZARD showed the specimens of a case of pineal tumour in a boy, aged 12 years, who had presented during life the complete clinical picture of pineal tumour, viz. sudden and abnormally rapid increase in height and in the development of hair and the genitals, signs of cranial hypertension and of localisation in the region of the corpora quadrigemina. Subsequently constant drowsiness developed and death took place in coma. At the autopsy the site of the pineal body was found to be occupied by a tumour the size of a hen's egg, which on microscopical examination proved to be a teratoid tumour of the neuro-epithelio-glioma type.

Abstracts from Current Literature.

Diseases of the Respiratory System.

Respiratory insufficiency in children (*Paris méd.*, 1921, II, p. 246). —Dumoutet states that a mild form of respiratory insufficiency in children may be due to two principal causes, viz. (1) Insufficiency of the lesser circulation; (2) insufficiency of the respiratory output, the first giving rise to acrocyanosis, and the second to a condition which he calls "hypasphyxia." In acrocyanosis the child is of normal size and weight, but the nose and cheeks are of a violet colour, the child is incapable of violent or rapid effort, the heart is liable to be irregular, but no signs of an organic cardiac lesion can be discovered. This condition, which is probably due to a pleuriglandular disturbance, must be distinguished from stenosis of the pulmonary artery, mitral insufficiency and stenosis, persistence of the ductus arteriosus, various malformations and pericardial adhesions, pulmonary tuberculosis and emphysema. In hypasphyxia the child is pale, cold, melancholy, readily

depressed by any effort, and has a low blood-pressure. Treatment of both conditions consists in respiratory gymnastics and properly regulated muscular exercise. Violent exercise of any kind must be forbidden.

J. D. ROLLESTON.

Asthma in infants (*'Presse méd.,'* 1920, xxviii, p. 481).—A. B. Marfan disputes Landouzy's doctrine that asthma occurs only in tuberculous arthritic subjects, and maintains that asthma is independent of tuberculosis. In two asthmatic infants under his observation the cuti-reaction, performed three times at intervals of two months and three and a half months, was negative. Asthma therefore is not always a manifestation of tuberculosis. According to Marfan the relative frequency of asthma in infancy is not sufficiently recognised, because it is difficult to diagnose it from broncho-pneumonia or recurrent bronchitis. Of 222 cases of asthma observed by Percepid, 25 commenced during the first year of life, 118 between 1 and 10 years, and 79 between 10 and 20 years. Unlike asthma in adults and older children, in whom the attack of asthma develops suddenly without being preceded or accompanied by catarrh of the upper respiratory tract or bronchi, in the infant, and up to the age of 5 or 6 years, the asthmatic attack is almost always preceded and accompanied by coryza and bronchitis. The short duration of the attack, its rapid disappearance and its recurrence with the same characters enable one to differentiate it from bronchopneumonia and expiratory stridor due to tuberculous glands. The prognosis of asthma in infancy is favourable. The earlier the attack is in appearing the greater the chances of a permanent recovery. On the other hand, if the first attack occurs after the age of 15 years there is a risk of the affection lasting throughout life. Asthma in infants does not leave any sequelæ. Treatment consists in the prolonged use of potassium iodide.

J. D. ROLLESTON.

Bronchiectasis in the child (*'Gaz. des Hôp.,'* 1921, xciv, p. 597).—H. Jumon.—This was first described by Laennec. It is much commoner than is usually supposed, especially the form due to syphilis. Predisposing causes are debility, rickets, chronic gastro-enteritis, and it may follow broncho-pneumonia, whooping-cough or measles. Pleural adhesion is a frequent accompaniment, though it does not cause bronchiectasis. Tuberculosis does not often cause it, but foreign bodies in the bronchi frequently do so. Most of the hereditary cases are the result of pulmonary syphilis and the treponema is found in abundance in the lung tissue. In the specific form the dilatations are isolated or grouped, in size from a pea to a nut with thin red walls sometimes fibrosed. The epithelium is more or less altered and the walls contain fibrous tissue and hypertrophied muscular fibres. In the non-congenital form affecting usually the base of the left lung there is chronic broncho-pneumonia, the lung is hard, violet-coloured and of an india-rubber texture, the dilatations are numerous, affecting the small and medium-sized bronchi. Sometimes there is one large cavity. The mediastinal glands are always enlarged and sclerosed and often tuberculous. The cause is an alteration in the walls of the bronchi with peribronchial inflammation and a destruction of the elastic and muscular tissue leading to a loss of toxicity of the walls. The symptoms follow an attack of subacute broncho-pneumonia, the cough persists, a slight fever remains, and these symptoms continue with occasional remissions. There is never hæmoptysis apart from tuberculosis. There may be mucoid or mucopurulent sputum, especially in the morning. Fœtor is rare. The chief

signs are those of chronic bronchitis, but those of a cavity may be present; there is diminution of movement, of vocal fremitus and of breath- and voice-sounds with some impairment to percussion. The child may appear in fair health and not have any obvious dyspnoea. The prognosis is better than in the adult, and cure may result, but the child remains susceptible to tuberculosis or chronic bronchitis. The complications are fetid bronchitis, pleural effusion and pulmonary gangrene. Tuberculosis frequently supervenes. The heart is rarely dilated, but pulmonary osteoarthropathy is frequent. The diagnosis has to be made from chronic bronchitis, tuberculosis and interlobar pleurisy. The treatment is that of chronic bronchitis.

J. PORTER PARKINSON.

Pleural disease in infants and children ('*New York Med. Journ.*, 1920, cxii, p. 124).—H. Lowenburg draws attention to the fact that the breath-sounds in young children are harsher and louder on the left side, and also that the breath-sounds are often not at all interfered with by fluid in the pleura. Percussion is the best sign, dullness and increased resistance over an area which is out of proportion to the amount of dyspnoea. No patient with empyema should be operated upon till the evidences of pneumonia have passed, the temperature has subsided and the pus become thick. The size of the opening is not so important as its position to give thorough drainage. Thoracotomy is to be preferred to costatectomy.

J. PORTER PARKINSON.

Acute pleuro-pulmonary congestions in children ('*Journ. de Méd. de Paris*, 1921, xl, pp. 193 and 211).—P. Nobécourt.—The pleura and lung are so united that a pleurisy must affect the cortex of the lung, and *vice versa*. Acute pulmonary congestions are frequent in children; their sensitive vaso-motor system and the tendency to inflammatory reaction of the mediastinal glands predispose to it. They may be secondary to an acute specific fever or apparently primary, of which there are three varieties: (1) The congestive pneumonia of Potain; (2) spleno-pneumonia of Grancher; (3) acute pleuro-pulmonary congestion of Potain and others. Apart from the pneumonic form, their clinical syndromes are characterised by pleural signs without effusion. The serous membrane is oedematous and sometimes effusion may follow. Pleuro-pulmonary congestion has an onset less abrupt than pneumonia; there is shivering, pain in the side, dyspnoea and fever rising up to 103° F. or so in two to three days. One finds signs of congestion of one or both bases and slight dullness with no sense of resistance to the finger. Vesicular murmur is feeble with fine crepitant râles. Vocal fremitus is lessened. After some days the fever diminishes, and the temperature becomes normal and the physical signs clear up. If the fever persists signs of pleural effusion may appear; at first a small quantity only is present and this may be absorbed or may increase. This fluid is serous or sero-fibrinous and generally of pneumococcal or tuberculous origin.

J. PORTER PARKINSON.

Empyema in children ('*Practitioner*, 1921, cvii, p. 238).—F. C. Pybus.—The pneumococcus was the causative agent in 40 out of 59 cases where the bacteriological examination was made, the streptococcus in 2 out of 59, the staphylococcus in 3, and the tubercle bacillus in 2. The mortality was 24 per cent. Bilateral empyema occurs after broncho-pneumonia, and is frequently complicated by purulent pericarditis and meningitis. The most constant physical sign is dullness, and over this area

of dulness bronchial breathing and moist sounds may be heard—facts not generally recognised, which account for much late diagnosis. In chronic cases fever may be absent, the affected side contracted, and the heart pushed over towards the lesion. As the pleura gets thickened the breath-sounds are suppressed and the physical signs resemble those found in adults. Aspiration is only recommended in bilateral cases or when the patient is too ill to stand operation. The site of the operation is the seventh or eighth intercostal space in the mid-axillary line. Infiltration anaesthesia by novocaine is recommended; 1 to $1\frac{1}{2}$ in. of rib should be removed. Discharge usually persists from four to six weeks. If the lung does not expand resection of more ribs or thoracoplasty is advised.

CHRISTOPHER ROLLESTON.

Method for diminishing mortality in empyema in infancy and childhood (*'Lancet,'* 1921, II, p. 1100).—**F. J. Poynton and F. N. Reynolds.**—Seventy-one cases are considered, 21 being under one year, and 50 between one and two years of age. Forty-five were males, 26 females. The death-rate in the first year was 76 per cent., in the second year 46 per cent. Twenty-one were pneumococcal in origin, 4 staphylococcal, 3 streptococcal, 3 tubercular, and in 1 no organism was found. In 26 there was a clear history of pneumonia, in 7 of broncho-pneumonia, in 7 of bronchitis, 6 were associated with measles, 1 with chickenpox, and 3 with whooping-cough. Cough, vomiting, dyspnoea and wasting in an infant point to empyema. Definite impairment of resonance or complete dulness was found in 66. In 46 breath-sounds were absent or diminished. In 18 there was tubular breathing, and in 23 the heart was displaced. In 12 cases the empyema was undetected or the child was moribund on admission. In 2 of these tuberculous meningitis and in 3 suppurative pericarditis were found. In 8 cases operated on by resection of ribs the cause of death was in 3 instances suppurative pericarditis, in 3 suppurative meningitis, in 1 lateral sinus thrombosis, and in 1 gangrene of the lung. Eleven died from immediate or delayed shock. To obviate this the authors devised an apparatus for continuous aspiration, consisting of a straight, round, silver cannula $\frac{5}{8}$ in. long provided with a shield through which tapes are threaded. This is inserted between the ribs by a short trocar; a rubber tube 10 in. long, closed at one end with a hole $\frac{1}{2}$ in. long involving half the diameter is introduced through the cannula into the chest cavity, and is connected by its other extremity with a White's suction pump. Continuous gentle aspiration is persisted with until pus has ceased to come from the chest for 48 hours, and physical signs, pulse-rate and temperature are satisfactory. The great advantage of this method is that the wound is healed within 15 days instead of 6 weeks required by the resection method. There is no secondary infection of the pleural cavity, and no osteomyelitis of the rib. No general anaesthetic and no daily dressings are required. The patient can assume any position desired without interfering with the efficacy of the drainage, which is continuous and complete. Expansion of the lung is assisted, as the suction produces a negative pressure of 8 mm. of Hg., which is more than that of the normal chest. As the removal of the pus is gradual the heart gradually resumes its normal position, and the danger of syncope is obviated. Occasional blockage of the tube by masses of fibrinous lymph may occur; but these can be washed away by injecting a few cubic centimetres of sterile salt solution. Four very successful cases are quoted in detail.

CHRISTOPHER ROLLESTON.

Influenza pneumonia complicated by empyema in an infant (*Med. Record*, 1920, xcvi, p. 62).—**A. Lobell** records a case of influenzal lobar pneumonia complicated by empyema in a male infant, aged 1 year. In spite of other complications, viz. double acute otitis, tonsillitis and ulcerative stomatitis, recovery took place. J. D. ROLLESTON.

The mortality factors of lobar pneumonia in children (*New York State Journ. Med.*, 1920, xx, p. 348).—**Le Grand Kerr** says there is sufficient clinical support for the statement that the mortality factor in lobar pneumonia in children is not predominantly pulmonic, and is not usually cardiac. The toxic element of the disease which is so feared in adults and which is directly blamed for the cardiac failure is to be dreaded as much in children, but its action is very different. Leaving out of consideration this toxæmia, we still have two factors which contribute to it. We may at once dismiss acute exhaustion because the disease is self-limited, usually short in duration and with convalescence rapidly established. But the less acute type of exhaustion adds much to the gravity of the prognosis, because if the course of the disease is protracted to the tenth day or beyond many die apparently from the exhaustion alone. The other factor is an acute gastric dilatation, which requires prompt treatment by efficient lavage, withholding of everything by mouth for at least twelve hours, etc. J. ALLAN.

Lobar pneumonia, with definite abdominal symptoms (*Med. Times*, 1920, xlviii, p. 140).—**J. Burnet** directs attention to the importance of remembering that children often complain of abdominal symptoms at the commencement of a pneumonia, and reports a case in a boy aged 13 years. When in doubt, it is always well to examine the chest before giving a definite diagnosis as to the nature of the case. J. ALLAN.

Basal pneumonic residues in children (*Tubercle*, 1920, i, p. 547).—**W. Overend** describes the radiological appearances in children who present dullness on percussion, increased tactile fremitus, tubular breathing and increased whisper at the apex or base of one side, and perhaps crepitations at one base. Such cases show dilatation of the bronchi at the hilum, with basal opacities due to the unresolved pneumonia. Sutherland and Jubb examined the sputum of 230 such cases. Only 9 per cent. were positive. In sixty-nine negative cases the sputum was inoculated into guinea-pigs; only two were found tuberculous at the end of the month, whilst thirty died from pneumococcal peritonitis in from one to nineteen days. Bronchiectasis of the internal moiety of the lower lobe or of the whole lobe is more likely to follow attacks of chronic or indurative basal pneumonia. Disseminated patches of broncho-pneumonia are more liable to produce areas of diffuse bronchial dilatation.

CHRISTOPHER ROLLESTON.

The diagnosis of pneumonia in children (*New York Med. Journ.*, 1920, cxii, p. 1032).—**S. A. Blauner** says the temperature is not as sure a guide as in adults. Influenza may produce a similar fever ending in crisis without any lung trouble being present. Sometimes the breath-sounds are not tubular over a pneumonic patch; this is due to the consolidation not extending to the hilum of the lung or to a good-sized bronchus, for if the breath-sound enters the lung and becomes once vesicular, no consolidation will produce bronchial breathing. The percussion note is one of the most

important signs, but the lightest stroke is the best to elicit the dulness. *Riles* may sometimes be absent throughout the whole course of the pneumonia. In non-confluent broncho-pneumonia, apart from slight dulness, there may be no abnormal signs except those of bronchitis. Resolution in childhood is often a slow process taking three to seven days, and a certain dulness may remain to a later period. The chief sign of fluid is a flat note, and this may often be found along the spine, as the fluid may flow in that direction and so produce what the writer calls "the ribbon sign," namely, a dulness about the width of a piece of ribbon along the spine. Bronchial breathing should not be expected, for the fluid overlies the lung and the latter is too resilient to be much compressed.

J. PORTER PARKINSON.

Radiological observations in acute respiratory affections in children, especially pneumonia (*'La Pediatria,'* 1921, xxix, p. 19).—C. L. Rusca states that radiological examination gives useful information in cases, not infrequent, where the onset of pneumonia is suspected, but physical signs are not yet sufficient to confirm the diagnosis. Lobar pneumonias are found by X rays much more commonly than symptoms would lead to suppose, while so-called "central pneumonias" are almost exceptional. Lobar pneumonia when developed gives a radiological picture which accords completely with percussion and auscultatory signs, while in early stages a shadow may often be detected when physical signs are deficient or even absent. X rays give a very definite picture of hepatisation, which is often not noticeable with the data furnished by percussion and auscultation, and is of some utility in conjunction with clinical signs in the differential diagnosis between lobar pneumonia and the caseous broncho-pneumonia *d'emblée* in young children. Broncho-pneumonia never gives the triangular shadow, but inconstant radiological pictures not corresponding to the clinical signs; nor is it possible by this means to differentiate between the various forms of broncho-pneumonia nor of its various stages, while the radiological differential diagnosis between acute broncho-pneumonia and tuberculous broncho-pneumonia is neither easy nor certain. Pleurisy with effusion gives the same radiological feature as in the adult, which has, moreover, great diagnostic importance in demonstrating small empyemas and interlobular sclerosis—sequelæ so frequent in acute affections of the respiratory system in children and often unrecognisable by the ordinary methods of investigation. X-ray examination sometimes possesses a preponderating value, as in determining the anatomical extension of an inflammatory focus, but can never supersede ordinary methods of diagnosis

VINCENT DICKINSON.

Abscess of the lungs in infants and children (*'Amer. Journ. Dis. Child.,'* 1920, xix, p. 137).—H. Wessler and H. Schwarz record 15 cases of abscess of the lungs in children aged from 6 weeks to 8 years. Three of the cases followed aspiration of a foreign body, 5 tonsillectomy, and 7 pneumonia or other inflammatory lung conditions. The situation of the lesion varied with the ætiology. In post-operative abscesses and in the aspiration type of post-pneumonic abscess the disease is usually situated in the upper lobes. On the other hand, abscesses due to the aspiration of foreign bodies and the chronic broncho-pneumonic type of bronchiectasis are usually found in the lower lobes. In their experience of more than thirty post-operative cases in children and adults, the writers

found that in about one-third recovery took place spontaneously about two months after the onset. The prognosis is bad in the post-pneumonic cases, and in few of these is recovery spontaneous. In cases which persist beyond two months the question of operation should arise. J. D. ROLLESTON.

A case of diaphragmatic hernia (*Brit. Med. Journ.*, 1922, I, p. 90).—**G. J. Langley.**—A girl of 10 was brought to hospital complaining of cough and cold. On the left side an area of dullness was found, extending downwards from the fifth rib in the nipple line, the eighth space in the anterior axillary line, and the angle of scapula behind. Over this area vocal fremitus and resonance were absent and the breath-sounds diminished but present. Hippocratic succussion and the coin sound were sometimes obtained. The upper limit of dullness varied. There were no digestive symptoms. Radiologically a complete regular dome was found in the left side extending as high as the third rib and enclosing an air space, through which in the upper part lung tissue was seen. At the bottom of the air space was a horizontal line of fluid. No definite movements of the bow line were observed on respiration. On the right the diaphragmatic movements were normal. On giving a bismuth meal, the lower third of the oesophagus was dilated and the stomach filled in an irregular manner. In the lying-down position the bismuth passed up to the top of the bow line in the chest, displacing the air and completely filling the dome. The colon was normal. A diagnosis of true congenital diaphragmatic hernia was made. Four inches of the eighth rib were resected and the pleura opened. The stomach was found to be projecting well into the thorax. There was no diaphragmatic muscle, but only a thin transparent membrane consisting of pleura above and peritoneum below. To reduce the size of the diaphragmatic sac an elliptical strip of the thinned-out diaphragm was removed, and afterwards the dome of the diaphragm only reached to the seventh rib in the mid-axillary line. Recovery was uneventful. No muscle or nerve tissue was found in the portion of diaphragm removed. A radiological examination 4 weeks after the operations showed that the collapsed lung had completely expanded, and paradoxical movements of the diaphragm, the bow line in the chest ascending during inspiration and descending during expiration were demonstrated. Three months later a further examination showed that adhesions were being formed, and that the movements of the bow line were much restricted, but still reversed. The condition has to be diagnosed from congenital elevation of the diaphragm or eventration, but there are no certain grounds at present for differentiation between these two conditions. It is always wise to operate before strangulation or volvulus occurs. CHRISTOPHER ROLLESTON.

Diseases of the Circulatory System.

Congenital heart-block (*Bull. Johns Hopkins Hosp.*, 1920, xxxi, p. 351).—**E. P. Carter and J. Howland** record a case in a girl, aged 10 years, of congenital complete heart-block, of which there are only seven other examples in which the diagnosis has been confirmed by graphic records, including the case reported by Whipham (*vide BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1915, xii, p. 321). A histological study does not appear to have been made in any of these cases. The remarkable features in the present case were the early diagnosis of the cardiac murmur at 9 months of age, an evidence of existence of congenital malformation of

the heart, the confirmation of the clinical diagnosis of heart-block by electrocardiographic records at the age of 3, the history of having passed successfully through an attack of pertussis at the age of 5, and the child's normal appearance and behaviour at the age of 10.

J. D. ROLLESTON.

Congenital aortic stenosis (*Bull. et mém. soc. méd. des hôp. de Paris*, 1921, 3^e sér., XLV, p. 1152).—**L. Queyrat** and **R. Monquin** report a case of congenital aortic stenosis in a boy, aged 5 years, and associated with other malformations and arrests of development, viz. cryptorchidism, absence of the xiphoid cartilage, microdontism and other dental defects suggestive of hereditary syphilis. The serum reaction, however, was negative both in the child and in the father, who was suffering from congenital pyramidal cataract—a condition sometimes attributed to congenital syphilis manifested by a loud rough murmur, most intense in the second intercostal space to the right of the sternum, and a thrill along the innominate and left carotid, displacement of the apex and absence of cyanosis, deformity of the fingers and breathlessness.

J. D. ROLLESTON.

Diagnosis and prognosis of persistent ductus arteriosus (*Zentralbl. f. inn. Med.*, 1921, XLII, p. 105).—**O. Budde** states that the diagnosis of persistent ductus arteriosus may be established by the following considerations: (1) The history, which indicates congenital heart-disease. (2) Entire absence or later occurrence of cyanosis, which usually never reaches a very high grade. (3) Moderate enlargement of the heart. (4) Visible pulsation and palpable thrill in the region of the second left intercostal space. (5) Loud systolic and occasionally also diastolic murmur in the second left intercostal space, which is conducted into the vessels of the neck and interscapular space. There is also a greatly accentuated second pulmonary sound. (6) On very deep inspiration there is a diminution of the murmur and pulsation. The prognosis as regards life is not very unfavourable, as there is at least one case on record of the patient reaching the age of 58. As a general rule, however, a disturbance of compensation occurs as the result of strain or intercurrent disease or during puberty, and the symptoms are those of cardiac disease with loss of compensation. It should be noted that a pulmonary artery that is constantly under high pressure is very liable to sclerotic changes. Moreover endoarteritic processes, as Wagener, Rickards and others have shown, have a special tendency to develop in or around an open ductus arteriosus, which therefore forms a *locus minoris resistentiæ*. Rupture of the duct may also occur.

J. D. ROLLESTON.

Patent ductus arteriosus with involvement of the left heart (*Deutsch. med. Woch.*, 1921, XLVII, p. 559).—**R. Gassul** reports a case of patent ductus arteriosus in a boy, aged 15 years, with hypertrophy of the left ventricle. When the boy was seen three years later the condition was the same, the defect being well compensated and the patient able to follow his occupation in an office.

J. D. ROLLESTON.

Case of cyanosis with congenital stenosis of the pulmonary artery (*La Pediatria*, 1920, XXVIII, p. 905).—**L. Moncalvi** reports the case of a girl, aged 2 months, admitted into the clinic with cyanosis and frequent paroxysms of cough and dyspnoea. There was a diffuse and heaving cardiac impulse extending to both sides of the sternum, with a shrill and loud bruit at the base conducted to the sides and back. Later on, when

1 year and 9 months old, there was cyanosis of the face, extremities and mucous surfaces, distended veins in the head and neck, abdomen distended with spleen felt on the *right* side, and the liver enlarged two fingers' breadth below the *left* costal margin, clubbed fingers, thorax generally enlarged, with the cardiac apex in the sixth right intercostal space, a long systolic bruit taking the place of the first sound and the second sound accentuated. The bruit was loudest in the second right intercostal space, where the second sound was almost imperceptible. The Wassermann reaction was negative. The child was discharged in fair health when 5 years old, the cyanosis having considerably diminished, the murmur soft and short and localised to the pulmonary orifice, and the spleen and liver still large, while the clubbed fingers had disappeared.

VINCENT DICKINSON.

Cardiac developmental defect with return to normal (*Journ. Amer. Med. Assoc.*, 1920, LXXIV, p. 1229).—**S. McLean** records the case of a child born after $6\frac{1}{2}$ months' pregnancy with cyanosis, clubbing of the fingers, and a loud systolic murmur over the whole chest. By the twenty-second month there was no murmur and the cyanosis had disappeared, and at the thirtieth month there was no clubbing of the fingers. A defect in the ventricular septum existing without any associated lesion would explain the symptoms and their subsequent disappearance.

J. D. ROLLESTON.

Pathogeny of congenital heart disease (*Arch. des mal. du cœur*, 1920, XIII, p. 534).—**C. Laubry** and **C. Pezzi** remark that all writers do not hold the same views as to the pathogeny of congenital heart disease, the two principal theories being the embryogenic theory and the inflammatory or infective theory. In favour of the embryogenic theory, which is the oldest, is the fact that congenital cardiac lesions are sometimes hereditary or familial, affecting several members of the same family and being transmitted from generation to generation either directly or indirectly. Moreover it is not infrequent to find in subjects of congenital heart disease other malformations, such as hare-lip, cleft palate, syndactyly, supplementary spleens, horse-shoe kidney or hypospadias. Vierordt estimates that these anomalies occur in 10 per cent. of cases of congenital heart disease. In most of those teratological manifestations no trace of infection or inflammation is to be found. Two congenital affections of the heart, however, may be the result of foetal endocarditis, viz. tricuspid stenosis and stenosis of the pulmonary artery. There is, however, a possibility that these lesions may be due to an endocarditis acquired very shortly after birth, but this variety is very difficult to distinguish from foetal endocarditis.

J. D. ROLLESTON.

The study of heart disease (*Brit. Med. Journ.*, 1920, II, p. 882).—**F. J. Poynton** emphasises the importance of infection. Malignant endocarditis which is antedated by rheumatism is infective in nature: 114 out of 172 cases of acute rheumatism occurring among children under 12 showed evidence of heart disease; 35 of these developed rheumatic nodules and 12 of these died; 16 became permanent cardiac invalids, and all but 2 had severe organic disease of the heart. Rheumatism in children may spare the valves and fall solely upon the myocardium, causing dilatation. Rheumatic heart disease is rare among the well-to-do. Careful inquiry

should be made into clothing and housing. Chorea is not caused by fright, as there was less of this disease in the years of the worst air-raids than in 1918, 1919 or 1920.

CHRISTOPHER ROLLESTON.

Auriculo-ventricular heart block in children (*Amer. Journ. Dis. Child.*, 1920, xix, p. 131).—J. A. E. Eyster and W. S. Middleton have collected twenty cases from literature of heart-block in children, nearly all of which were definitely or probably of congenital origin or occurred during the course of severe and usually fatal diphtheria. They also record a personal case of partial auriculo-ventricular dissociation which developed in a child aged 2 years, apparently in association with an acute nasal and throat infection in which the cultures showed *Staphylococcus pyogenes aureus*. The child, which was kept under observation for two years, developed normally, and was apparently in good health and normally active. The cardiac condition at the time of writing was that of a well-compensated mitral lesion associated with a 2 : 1 auriculo-ventricular block with a ventricular rate between 50 and 60.

J. D. ROLLESTON.

Microsphygmia and mitral stenosis (*Bull. et mém. soc. méd. des hôp. de Paris*, 1921, 3^e sér., xlv, p. 68).—G. Étienne and G. Richard report a case of microsphygmia, which has been found very frequently in idiots, in a girl, aged 15 years, in association with mitral stenosis and dwarfism. The microsphygmia disappeared after inhalation of amyl nitrite, and returned again rapidly after the effect of the drug had worn off. The writers think that the microsphygmia was due to functional predominance of the endocrine group which stimulates the sympathetic. The patient showed reaction to small doses of adrenalin and persistent symptoms of migraine, possibly of pituitary origin.

J. D. ROLLESTON.

Blood-pressure observations in functional bruits in children and young adults (*Brit. Med. Journ.*, 1922, I, p. 99).—A. F. Martin.—After the acute exanthems there is a rise in blood-pressure, with apical bruits and some cardiac dilatation. The systolic blood-pressure in healthy children is under 100 mm. Hg. up to the age of 11, 103 between 12 and 13, 106 between 13 and 14 years of age. The nitrites are very effective in reducing the blood-pressure in children, though useless in adults. Cases are quoted in which after the exhibition of nitrites for a few days the blood-pressure was decreased and the bruits disappeared. The rise in blood-pressure may be due to increased secretion of adrenalin and to exhaustion of the sympathetic nervous system which controls the endocrine system.

CHRISTOPHER ROLLESTON.

Modifications of the blood-pressure from the effect of adrenalin in sick children (*La Pediatria*, 1921, xxix, p. 542).—F. de Angelis injected 1 c.c. of a 1 in a 1000 solution subcutaneously, and took the blood-pressure at first every ten minutes and then every fifteen, until two successive observations gave the same result as that which existed previously to the injection. There was a rapid initial rise of pressure after the first ten minutes, reaching its maximum, in thirty minutes, then diminishing slowly in a period of 2½ to 3½ hours. The increase of pressure was seen in both the maximum and minimum tension, but more markedly in the former. The reaction was less intense and less durable in children affected with

cardiac affections or those which indirectly affected the cardio-vascular apparatus. The pulse was at first quickened, but almost immediately after it slowed down, while still maintaining a high systolic tension.

VINCENT DICKINSON.

Variations in the blood-pressure produced by injections of pituitrin in various infantile complaints (*La Pediatria*, 1921, xxix, p. 548).—**S. Fabris** injected subcutaneously 1 c.c. of pituitrin in fifteen children affected with latent tuberculous infection, nephritis, diabetes insipidus, scrofula, eczema, tracheo-bronchial adenopathy, cerebral tuberculoma, broncho-pneumonia, lymphatism, rickets, internal Leishmaniasis and mitral stenosis. Variations of pressure took place in all in ten to fifteen minutes after the injection. Patients of all ages and suffering from the same disease responded with an identical type of reaction. The alteration of pressure never exceeded 1 cm. Variations of the maximum and minimum pressure were usually parallel, except in cases of broncho-pneumonia, in which a diminution in the maximum corresponded to a slow and constant increase in the minimum. The duration of the action of the pituitrin was generally seventy-five minutes, after which pressure returned to normal. In the majority of cases the minimum returned before the maximum. In some cases the increase of pressure was preceded by a slight transitory fall, as in latent tuberculous infection, nephritis and diabetes insipidus; in others the increase was shown from the commencement. In others, again, there was a constant slow diminution of pressure from the onset, as in mitral stenosis, broncho-pneumonia, kala-azar and lymphatism.

VINCENT DICKINSON.

Pericarditis in childhood (*Brit. Med. Journ.*, 1921, II, p. 583).—**F. J. Poynton** emphasises the danger of pneumococcal pericarditis, especially as it attacks in 84 per cent. of cases children under the age of four, and is frequently complicated by pneumonia, pleurisy and empyema. The point of most importance in diagnosis is the gradual disappearance of the heart-sounds. It is important to map out the dulness carefully and to note the upward extension on both sides, especially the left. The left lung is compressed, as is evidenced by dulness over the left clavicle and tubular breathing below. On the right the præcordial dulness may reach the nipple line, and this line of dulness extends downwards and outwards, forming an obtuse angle with the hepatic dulness, while the dulness of a dilated right auricle forms an acute angle with the hepatic line. It is doubtful if it is possible to distinguish by radiography between a dilated heart and pericardial effusion. Owing to the fact that intense tubular breathing appears at the inferior angle of the left scapula, followed by dulness extending to the base, pleurisy or pneumonia is frequently diagnosed. Useful additional signs in arriving at a diagnosis are obliteration of the intercostal spaces, a wavy impulse, absence of diaphragmatic movement, and the almost imperceptible wave of the pulse. Tuberculous pericarditis is perplexing, the patient suffering at one time from pleurisy and at another from pericarditis. Ascites with hepatic and splenic enlargement ensues. For sero-fibrinous and purulent effusions surgical drainage rather than paracentesis is preferred. In paracentesis Marfan's route is recommended. The tip of the ensiform cartilage is defined, the needle inserted for three-quarters of an inch and then directed upwards and slightly backwards. In rheumatic pericarditis superficial crepitations are frequently heard immediately under the sternum and in

its neighbourhood, the result of a concurrent mediastinitis ending in pericardial adhesions. In such cases if a child has an aortic lesion angina develops. Sometimes œdema of the arm dependent on venous thrombosis develops, stripping the adhesions from the chest-wall. The Talma-Morrison operation has been attempted in a few cases with success.

CHRISTOPHER ROLLESTON.

Reviews.

PRÉCIS D'ALIMENTATION DES NOURRISSONS. Par E. TERRIEN. Fourth édition, 1921. Pp. 309. Price 12 fr. net.

PRÉCIS D'ALIMENTATION DES JEUNES ENFANTS. Par E. TERRIEN, Paris: Masson et Cie, 1922. Pp. 465. Price 14 fr. net.

WHILE the new and revised edition of Dr. Terrien's work on the feeding of infants follows the same general plan as before, the facts and theories discussed have been brought thoroughly up to date, and no important relevant points omitted. The volume, which is addressed to medical practitioners, is divided into two main sections dealing respectively with feeding in health and in disease. In the first and shorter section, after the familiar comparative table showing the percentage composition of human and other milk, are discussed *seriatim* the various points in relation to breast-feeding, mixed feeding and artificial feeding, their respective indications, advantages, difficulties and contra-indications. Among the contra-indications to breast-feeding the author, while acknowledging that quantitative modifications in the milk secreted seldom or never involve the exclusive adoption of artificial feeding, states that the quality of the breast milk may form an absolute contra-indication—temporary or permanent—to suckling. Other contra-indications mentioned include contagious diseases, tuberculosis, cardiac disease, especially if ill-compensated, and sometimes affections of the nervous system, both functional and organic. The section concludes with advice on the feeding of infants during the ninth month and directions for weaning.

The second and more important section deals with feeding in pathological conditions, these conditions being discussed under the three broad headings of (1) digestive disturbances, (2) nutritional abnormalities, including congenital debility, athrepsia, atrophy and hypotrophy, and (3) syphilis. There is an excellent chapter on the examination of the stools, and the evidence afforded thereby of pancreatic, hepatic and intestinal insufficiency. The volume concludes with a *résumé* of the various formulæ for estimating food requirements in relation both to age and weight, together with notes on dentition. A short but on the whole adequate index is provided.

The second volume, which is a new work, deals with the principles of the feeding of children from weaning to the age of ten years. As in the first volume, the author discusses in separate sections the questions of feeding in health and in various pathological conditions. The needs of the organism are entered into in some detail, with especial reference to height and weight, and caloric requirements. Nearly forty pages are then devoted to the theoretic feeding of the child, followed by fifty pages on the practical working out of

the theories. The second part, dealing with the regimen demanded in a large variety of pathological conditions, is no less full, and various forms of treatment, specific and symptomatic, receive an adequate share of attention. In neither section, however, can we find any reference to the work of Pirquet, although an unusually large number of authorities appear to have been consulted. The omission of such reference is particularly unfortunate in a work planned on the scale of the present one, and may well be repaired in the next edition of Dr. Terrien's book. A third section on some adjuvant forms of treatment, including fresh air, climatotherapy, heliotherapy, myotherapy, hydrotherapy, serum injections, etc., completes a volume which will be found useful to all pædiatrists. The absence of an index is regrettable, and detracts somewhat from the usefulness of the book as a work of reference. E. M.

A SYNOPSIS OF MEDICINE. By HENRY LETHEBY TIDY, M.A., M.D., F.R.C.P., Assistant Physician to St. Thomas's Hospital, Physician to the Great Northern Central Hospital. Bristol: John Wright & Sons, 1922. Second edition, revised. Price 21s. net.

THE appearance of the second edition of this excellent manual barely eighteen months after the first (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1920, xvii, p. 217) is an eloquent testimony of its well-merited success. The principal change in the present edition is in the section on encephalitis lethargica, which has been completely rewritten. J. D. R.

LESSONS ON TUBERCULOSIS AND CONSUMPTION. By CHARLES E. ATKINSON, M.D. Pp. 470. New York: Funk & Wagnalls, 1922. Price \$2.50 net.

Books written for the general public on one or more aspects of disease are becoming increasingly numerous on both sides of the Atlantic. While Dr. Atkinson's new book differs little save in detail from its predecessors, there is probably a considerable section of the public who will study it with pleasure and benefit.

The volume consists of sixteen "Lessons," with such headings as "How Tuberculosis is Spread"; "How to Prevent Tuberculosis"; "How Tuberculosis may be Recognised"; "If the Chest had a Window"; "You and Your Physician"; "The Secret of Eating to Win"; "When the Blue Days Come"; "Special Methods of Treatment and Surgical Measures"; "Hints on Nursing." Dr. Atkinson writes in a popular style and with a commendable absence of technical terms. The teaching on the value of fresh air, rest, exercise and kindred topics is sound and up to date, but much of the advice given deals with points on which the doctor in charge of the case is alone competent to decide, and in such cases the minute details into which Dr. Atkinson enters are liable to defeat their own object—the promotion of whole-hearted co-operation of the patient with his physician. Furthermore, the wealth of detail given on every phase of the subject may possibly encourage a patient to undertake the management of his own case, this course apparently being contemplated by the author with equanimity. On p. 130 there is a paragraph on making your own diagnosis, which we regard as dangerous in the extreme. It is hardly possible to imagine circumstances in which a patient—at any rate of the classes by whom the book will be read—is out of reach of a medical practitioner whose advice

will not be at least far more valuable than the patient's own thoughtful reflections, even backed up by a careful reading of the appropriate lesson.

Apart from these criticisms the work is one that should prove useful to intelligent men and women suffering from tuberculosis, if for nothing else, for the tone of cheerful optimism running through its pages.

There are twenty illustrations, and the book is provided with an adequate index.
E. M.

A TEXT-BOOK OF GYNÆCOLOGY. By JAMES YOUNG, D.S.O., M.D., F.R.C.S.
Pp. 334. London: A. & C. Black, Ltd., 1921. Price 15s. net.

THIS volume, forming one of the Edinburgh Medical Series, is evidently intended rather for the senior student than for the medical practitioner, for although it contains a great deal of information in a small compass, more space is devoted to theoretical than to practical considerations, and the question of treatment is not very adequately discussed.

The nine sections of the book deal with anatomy and physiology, examination of the patient, symptoms of gynæcology, displacements of the uterus, infection of the genital canal, extra-uterine pregnancy, new growths, development and errors of development, and operative gynæcology (including minor gynæcological procedures). While all the sections are good, and most of them as full as it would be reasonable to expect in a book of this size, one of the best is that on the anatomy and physiology of the female genital organs, embodying the more recent teaching on menstruation and on the functions of the ovary. The section devoted to new growths of the genital tract is admirably arranged, and fully, though not of course exhaustively, treated. More attention might, we think, have been directed to the question of the neuroses in relation to pelvic disease, other points either omitted or inadequately dealt with being cutaneous lesions of the external genitalia, and diseases of the urinary tract, anus, and rectum, which are so intimately bound up with the more specifically gynæcological problems as to claim at least a passing mention in such a text-book as this.

On the whole, however, the author has made a wise selection of material, and the teaching being throughout at the high level of excellence which might be expected from such an authority as Dr. Young, the volume is one which deserves a wide circulation.

The illustrations, numbering 183, are helpful, appreciably adding to the value of the book.
E. M.

THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XIX.

APRIL—JUNE, 1922.

Nos. 220–222.

Original Articles.

THE SEVERE BLOOD DISEASES OF CHILDHOOD: A SERIES
OF OBSERVATIONS FROM THE HOSPITAL FOR SICK
CHILDREN, GREAT ORMOND STREET.

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PART I.

Introduction.—The diseases of the hæmopoietic system, in spite of the great amount of work which has been expended in their elucidation, are still obscure as regards both their origin and their classification. If this is true of these diseases as they occur in the adult it is even more true in regard to the anæmias of children below the age of puberty. It has appeared, therefore, to us to be worth while to review and endeavour to classify as carefully as we are able the anæmias which have been met with in the wards of Great Ormond Street in the last two and a half years.

Before entering on any description of the diseases with which we propose to deal, there are a certain number of points which appear to demand discussion and definition in order to make plain our meaning and the general trend of our ideas.

Definition of anæmia.—The physician uses the term “anæmia” chiefly

in a purely clinical sense, judging its existence usually by the pallor of the skin and mucous membranes. If we try to define the term more accurately, anæmia is the failure of the blood-forming tissues to maintain the normal supply of corpuscles and of hæmoglobin to the rest of the body, and the gauge of its severity is measured by the failure of the capillary blood to reach certain normal standards in respect of numbers of corpuscles and amount of hæmoglobin. For the purpose of this clinical study we assume without discussion that after birth the hæmopoietic tissue of the body is the marrow contained in the bones of the skeleton, and that this is the source not only of the red corpuscles and the hæmoglobin, but of the white corpuscles as well. The exact site of formation of hæmoglobin is, we understand, unknown, but there can be no question that it enters into the red corpuscle in the bone marrow. Anæmia is therefore caused by (1) the destruction of the hæmoglobin and the erythrocytes more rapidly than they can be replaced by the normal or enhanced activity of the bone-marrow; or (2) by the failure of an abnormal bone-marrow to produce sufficiently to maintain the normal quantities. In other words anæmia may be due to exaggerated extra-bone-marrow destruction, with normal or even increased bone-marrow production, or to failing or diseased bone-marrow production. The anæmia caused by severe hæmorrhage is a simple instance of the first type; that of anæmia of the so-called "aplastic" form, or of leukæmia, belongs to the second division.

Methods of investigation.—The methods of investigation employed in the elucidation of the problems of anæmia are all well known; there has been no considerable addition to them for many years, nor will there be in our opinion real advance towards the solution of the problems until we learn to use new methods of approach; and it is one of the aims of this review to reconnoitre the ground anew and to survey the lines of attack.

Hitherto most study has been devoted to an attempt to understand the nature of the abnormal reactions of the bone-marrow by minute and painstaking examination of the nature and character of the cells produced in disease conditions. The first success was achieved more than eighty years ago by Bennett and Virchow, when by such study of cells they were able, independently and almost simultaneously, to separate the group of leukæmias from the other anæmic diseases. Elaboration of the method followed, and the work of the next half century has made us acquainted with the characters of the bone-marrow reaction in a number of conditions which have as one of their chief features the appearance of anæmia. But we venture to think that the profitable limits of this mode of investigation have been reached, and that the examination of the capillary blood by means of numerical counts, estimations of the proportionate numbers of white cells, and their examination by elaborate and careful

staining, though still indispensable, is unlikely to open a new vista on the problems. In this particular field of research we have learnt much of morphology, but very little of function. We know, for instance, that to many of the pyogenic infective agents the bone-marrow reacts by an abundant production of polymorphonuclear leucocytes, but we also know that in some instances this reaction is replaced by an unexpected lymphocytic increase—a phenomenon at present quite without explanation. Similarly there is as yet but little knowledge of the function or the causes of increase of the eosinophil cells, and still less of those of the basophil or large mononuclear cell.

Morphology of the leucocytes.—The morphology of the various cellular elements of the blood has been more especially studied in the leukæmic diseases, and an immense amount of painstaking work has been devoted to the relationship between the different forms of marrow-cell which make their appearance in the capillaries in these diseases. The fully developed myelocyte, which in health rarely, if ever, makes its appearance in the capillary blood, may in the more chronic, and even in some of the acute, forms of leukæmia be present in such numbers that it predominates over all other forms. In the leukæmias of children the fully developed cell, though often present, more usually gives place to a cell which is often termed a “lymphocyte.” But it is not the normal lymphocyte of the capillary blood; it is larger, with more protoplasm which is often vacuolated, and a large, sometimes slightly notched nucleus which often takes the stain with a lighter tint of blue than the normal lymphocyte. This cell has received a great variety of names: premyelocyte, promyelocyte, myeloblast, and primitive cell, but it is generally admitted that it has its origin in the bone-marrow. The precise relationship of this cell with the myelocyte appears to us to be of little clinical importance, since it is admitted that its appearance in any number in the capillary blood is good evidence of bone-marrow leukæmia. Clinically, its only significance otherwise is that in those cases in which it predominates the course of the disease tends to be shorter and more acute than in those in which the fully developed myelocyte preponderates. The presence of either cell in large numbers in the capillary blood suffices to establish the clinical diagnosis of leukæmia. To this rule there is, however, one possible exception. We have said above that the myelocyte rarely, if ever, appears in the normal capillary blood. We may add that its appearance, save in the leukæmias, in disease is most exceptional. It is occasionally seen in the acuter stages of diphtheria, and occasionally a single cell is observed in other diseased conditions. But in the disease originally described by von Jaksch—anæmia pseudo-leukæmica infantum—it is always present; and it is occasionally difficult, because of this combined with some other

clinical features, to separate at once this disease from leukæmia. The distinction is clinically of importance from the point of view of prognosis, since more than half of the patients affected with von Jaksch's disease recover perfectly, whereas the leukæmic patients without exception die. The relationship of the two diseases will be further discussed later.

Oxydase reaction.—Closely connected with the question of the morphology of the blood-cells is the question of their chemical reactions. Some years ago, when the controversy about the origin of the "lymphocyte" was at its height, Schultze suggested that an examination of the chemical reaction of their contents might be useful to determine their origin. It was held that the presence of oxydase was sufficient to prove the bone-marrow origin of the containing cell, and various stains have been devised to demonstrate its presence. So far as these methods have tended to strengthen the contention of the supporters of the bone-marrow origin of nearly all forms of leukæmia they have been useful, but now that this view has won wide acceptance on this and other grounds the demonstration of the oxydase reaction in the blood-cells is no longer of great value. Further it must be recorded that there occur cases in which, although there was every reason to believe that the bone-marrow was the source of the abnormal cells, these failed to show the presence of oxydase. More recently Marfan, Minard, Saint Girons and Broussolle in France, and C. S. Graham in America have studied the peroxydase reaction, but of this we have no personal experience.

Bacteriology.—Both during life and after death bacteriological examination of the blood, pathological fluids and tissues has given us little of positive value. Organisms have been isolated, occasionally during life, and more frequently after death in several types of the severe anæmias; especially in the more acute leukæmias streptococci and diphtheroids have been found, usually towards the end of life or in post-mortem cultures. It is not, we believe, maintained by any pathologist that such organisms have any causal relationship to the diseases.

In the case of von Jaksch's disease protozoal bodies were described many years ago, but the discovery has never been confirmed. There is no other evidence to connect any of the anæmias of children with known protozoa.

Yet the nature, course and morbid anatomy of many of these forms of disease suggest strongly that their origin is to be found in some focus of infection. In the adult it is, we believe, accepted that an infective process may be the cause of an anæmia of the most severe type, indistinguishable as regards the reactions of the bone-marrow from the classical pernicious anæmia, and yet capable of recovery by removal of the infective focus. It is not, of course, essential that the infection should actually be localised

in the hæmopoietic system ; it seems to be more likely that toxins, specific for the bone-marrow, are manufactured in foci remote from the site of their activity. We know already the rapidity with which an anæmia makes its appearance in, for example, the infection with *B. diphtheriæ*, and we have already referred to the fact that in this disease the bone-marrow occasionally reacts by sending a few myelocytes into the capillary blood, and the polymorphonuclear response to the pyogenic infections, wherever situated in the body, is an established fact. What we do not know is the mechanism by which the demand is conveyed to the marrow, though in the last instance the response is so rapid that it is difficult to escape from the conception of a substance manufactured by bacterial activity circulating directly to the bone-marrow and stimulating there a specific activity. Argument by analogy may, we know, be unsound, but analogy may well serve as the scaffolding for an hypothesis, and to us it would appear that the hypothesis of an infective origin for all the severe anæmias, including the leukæmias, is that which is most likely to prove fruitful. But the attempt to substantiate this, or indeed any other hypothesis, must be made with new weapons ; it is, we think, clear that neither in the direction of research into the morphology of the blood-cells, nor by the current methods of the bacteriologist are we likely to come into possession of new facts.

Histology.—Nor is it probable that we shall get new light from histology. It is true that within the last twenty years the histology of lymphadenoma has been so accurately defined that we have in this method a means by which we can with certainty recognise, at any rate after death, the nature of the disease, even though the clinical signs have misled us. Yet as regards the leukæmias, and some of the other grave anæmias, the examination of sections of the organs and even of films of the bone-marrow may still leave us doubtful. It has been stated, for instance, that the kidney tissues in leukæmia invariably show a marked infiltration with the abnormal cell. In our experience, though it is often true that the kidneys show profound alteration by reason of the presence of the “leukæmic” cell, yet we have in our record several cases in which, from a consideration of the changes in the kidney, or even in the liver, it would be impossible to recognise with any degree of certainty the existence of leukæmia, and there are even uncertainties with regard to the changes in the bone-marrow. Films of the bone-marrow in cases of “aleukæmic leukæmia” may bear a striking resemblance to those obtained in cases in which there was grave anæmia, but no indication of leukæmia. Histological examination is, therefore, a valuable means of confirmation, or even of help in classification, but is not likely to give us new light on the problem of causation.

Hæmolysins, etc.—In the last few years a great amount of work has been done in respect of the properties of the serum of the blood. Yet we believe that in the diseases of the hæmopoietic system there has been little or no research in this direction. Yet we are in possession of certain facts which appear to point to the probability that blood serum contains substances which may be of importance both as regards the circulating blood and the hæmopoietic tissues. It is known that the injection beneath the skin of normal serum, especially of human serum, has a remarkably curative effect in the hæmorrhagic disease, melæna neonatorum, and the same power of controlling hæmorrhage from the mucous surfaces is sometimes observed in cases of purpura hæmorrhagica. The writers have further from time to time treated other forms of severe anæmia with subcutaneous injections of human serum, and in one instance, a case of von Jaksch's anæmia of great severity, with remarkably favourable effects. In two cases of leukæmia the injections appeared to have a beneficial effect on the course of the illness, though there was certainly no curative effect.

On the other hand, transfusion of the whole blood has not in our hands appeared to be of any benefit to the patients, even temporarily, and may even be harmful. We have examined the sera of several patients for the existence of hæmolysins, mostly with negative results. However, in two severe cases of purpura the patient's serum was found to hæmolyse an observer's washed erythrocytes, though it had no such effect on the patient's own corpuscles.

Our observations in this field are at present very few, and it is a method of research which demands more training and probably more knowledge of bio-chemical problems than we possess, but we do not doubt that in this direction light upon some of the problems of anæmia will come.

Coagulation time : fragility of the red corpuscles.—Two other methods must be mentioned which we have employed in some of our cases. The estimation of the coagulability of the blood is an extremely difficult matter, chiefly because the methods hitherto devised are insufficiently accurate. It is fairly easy to detect wide variations from a normal period, but it is, we believe, impossible with our present methods to obtain accuracy in the measurement of the smaller degrees.

The fragility of the red corpuscles to normal and subnormal saline has been extensively studied, and it can be stated with certainty that except in acholuric jaundice any marked increase in fragility is exceptional. In the severer grades of anæmia, and notably in those of the pernicious type, the red corpuscles, so far from being unduly fragile, are usually unduly resistant. The cause of these variations in either direction from a standard which is so extraordinarily constant for all ages is unknown,

but it is to be sought in the corpuscle and not in the serum in which they are bathed ; on the contrary experiments seem to point to the serum having a protective influence against the hæmolysis of the corpuscle.

The method we have used compares the hæmolysis of the red corpuscles of the patient with that of a normal individual in a series of dilutions of normal saline, beginning at '8 per cent. down to '3 per cent. with intervals of '05 per cent. In the normal individual hæmolysis first occurs in the dilution of '47 per cent.

Summary.—From this brief review it will be evident that for the investigation of the anæmias we are sadly in want of new methods. The examination of the morphology of the blood-cells has contributed most largely to our knowledge in the past, but has, it appears to us, reached a dead end—that is in respect of the advance of knowledge, for its application is still indispensable for the proper classification of the anæmic diseases. The examination of the fragility of the red corpuscles enabled Gilbert and Chauffard to define and recognise one peculiar form of anæmia, for which we appear to have a cure in splenectomy, although we do not yet understand the nature of the disease. With these exceptions no other method employed has added materially to our knowledge, nor appears likely to do so. The study of the nature and properties of the blood serum, including the mineral contents, seems to be most likely to be profitable.

Banti's disease.—Whether Banti's type of splenomegaly occurs at all in children under puberty is a matter of dispute, but that it is excessively rare is agreed, and the majority of the cases reported in the past under this title would probably not be admitted as such. Even in Italy a recent writer (Canelli, 'La Pediatria,' September the 15th, 1921) on this topic knows only of thirty cases, and points out how often in the pre-Wassermann days the factor of syphilis in the production of a splenomegalic anæmia was unrecognised. In our own experience we have not met with any case in which the history, course and symptoms were unmistakably those which are familiar in adults, those instances in which the diagnosis has been suggested almost invariably in the subsequent course of the disorder being classified under some other designation. At the same time it is fairly certain that the disease does sometimes begin before puberty, for the histories obtained from adults or adolescents point unmistakably in that direction. It remains, however, certain that many of the cases formerly reported under this heading would now be recognised as syphilitic, tuberculous, or belonging to the acholuric jaundice group.

Blood-platelets.—The rôle played by these structures in the normal individual is still imperfectly understood. The prevailing opinion is that they are connected intimately with the processes of coagulation. The following facts are known : Their numbers average about 200,000

to 300,000 per c.mm. and vary in health with great rapidity. In disease they may be increased or diminished to an extreme degree in either case, rising up to 2,000,000 or sinking to as little as 2000. Experimental work has shown that their place of origin is the bone-marrow, and hence it would be natural to expect that in the hæmopoietic disorders great variations would be met with. And, in the broad sense, this is the case; an increase is observed in those diseases in which there is a great activity of the bone-marrow, as for example the myelocytic form of leukæmia; and a decrease in those diseases in which there is reason to think that the hæmopoietic function of the bone-marrow is inactive or absent. The most marked decreases recorded have been observed in purpura hæmorrhagica, and the so-called "aplastic" anæmia. Experimentally, poisons such as benzol and bacterial toxins are found to diminish the numbers, but these same poisons when given in minimal doses appear to stimulate their production in a high degree.

The effects of these variations in number are uncertain. The researches of Ledingham, Bedson and others tend to show that a marked diminution is often associated with a tendency to capillary hæmorrhages, but that the absence or diminution of the platelets is not in itself the efficient cause of such hæmorrhages; there must be in addition damage to the endothelial lining of the capillaries.

To sum up: The known association of the platelets with the processes of coagulation, the marked diminution of their numbers in such diseases as purpura hæmorrhagica, and the experimental work all seem to point to a strictly limited function for the platelets in connection with the escape of the formed elements of the blood from their containing vessels. There does not appear to be anything to suggest that, except in this respect, the platelets are concerned either in the production or the cure of anæmia.

We have considered the cases which have occurred in this two and a half years under the following headings: (A) Congenital anæmias—acholuric jaundice, polycythæmia; (B) Severe anæmias—anæmia gravis, von Jaksch's anæmia (pseudo-leukæmica infantum); (C) leukæmia; (D) simple anæmia—chlorotic type; (E) lymphadenoma; (F) purpura.

Congenital anæmia.—It would seem probable that just as other tissues of the body are subject to congenital malformation, so the tissues of the hæmopoietic system should occasionally suffer in this fashion. But, with one exception, presently to be discussed, there is no evidence available in support of this hypothesis. Even in the rare cases where anæmia exists at the time of birth, or shortly afterwards, the causes which produce the anæmia appear to be those which are familiar in later life, especially the septic processes arising from infection of the umbilical

cord. Nor in those children who are otherwise congenitally malformed does the blood appear to be, with our present knowledge, in any way abnormal in its constitution; the Mongols, for example, have the usual amount of hæmoglobin, and the usual type of red and white corpuscles. Only in the case of congenital pulmonary stenosis is there a marked abnormality, and here the abnormality is rather quantitative than qualitative. *Melæna neonatorum*, again, produces in the blood the expected changes—that is there is a marked reduction in the numbers of the red corpuscles, and in the amount of the hæmoglobin; and the bone-marrow reacts to the loss of blood by the production of erythrocytes in a rapid fashion, often with an excess of nucleated erythrocytes in the peripheral circulation.

Congenital acholuric jaundice.—The only type of anæmia of which we have any present knowledge, which can be fairly called congenital, is that associated with acholuric jaundice, an affection which is certainly in many cases an inherited disorder. Whatever is the exact pathology of the condition, its most prominent characteristic is the congenital fragility of the red corpuscles. The corpuscles are themselves well formed and do not in their morphology show any abnormality, but are more easily dissolved than the normal corpuscle. The fact is easily ascertained by comparing the resistance of the red corpuscles of such a case with those of a normal individual to the action of solutions of sodium chloride in a graduated series of dilutions. In the normal individual the corpuscles are not destroyed by immersion in a salt solution of a greater percentage strength than 0·47 per cent. This figure has been ascertained with precision by numerous workers, including Widal and Abrami. At this point hæmolysis of the corpuscles is slight; with a weaker solution, 0·4 per cent., it is already considerable, and with solutions weaker than this it is complete, no visible corpuscle remaining intact after a very short exposure to the solution. In strengths above 0·47 per cent. there is not the least trace of hæmolysis, the corpuscles retaining their shape and their hæmoglobin. In cases of congenital acholuric jaundice, on the contrary, the corpuscles break down and give up their hæmoglobin in solutions of sodium chloride as strong as 0·6 per cent., 0·7 per cent., or even 0·75 per cent. It is certain that the cause of this behaviour resides in the corpuscle itself, for if the serum and corpuscles be separated and the serum of the patient be added to normal corpuscles, properly washed, and these then examined as to their fragility, no abnormal hæmolysis occurs; whereas the serum of a normal individual similarly added to the washed corpuscles of a patient suffering from this affection does not reduce the abnormal fragility of his corpuscles. It is, therefore, obvious that the cause of the abnormal fragility must lie in the corpuscular structure.

The abnormal fragility is an inherited quality. It occurs in families and is transmitted from one generation to another. Two families are known in which it has appeared in four generations. Unlike hæmophilia it is not apparently either confined to one sex, nor transmitted by one sex only, but attacks males and females alike and is transmitted either by the father or the mother. Like hæmophilia, however, it is apparently partial in its distribution; not all the members of a family are affected, and even those who are affected suffer in different degrees. In some instances, although the abnormal fragility is present, the individual has never suffered any disability from its presence; in others, and these are the patients who attract our attention, there are constant attacks of severe anæmia and jaundice. The anæmia is sometimes severe enough to endanger life, and frequently to disable the patient from earning a livelihood. The attacks are definitely paroxysmal; at times the patient is apparently normal in colour, without jaundice, and his blood-picture almost normal; at other times, for no apparent reason, he is anæmic to a severe degree, and jaundiced. The urine rarely, if ever, in this disease contains bile-pigments but is usually deep-tinted with urobilin.

As in hæmophilia, apart from the cases occurring in known families there are seen cases of "bleeding" indistinguishable from family hæmophilics, so in this disease there are frequent examples of the affection in individuals none of whose relatives are affected.

Associated with the abnormal fragility of the corpuscles is a remarkable clinical phenomenon—enlargement of the spleen. In all the cases which we have seen of this disease the spleen has invariably been large, and in some instances enormous, reaching to the mid-line and the iliac crest; in others it is, though enlarged, comparatively a small organ. Its enlargement varies with the degree of the severity of the affection; when the anæmia is at its height, the spleen is at its largest; when with rest and other treatment the anæmia improves, the spleen tends to become smaller. Yet even in cases where the disability is trivial, the tendency appears to be for the spleen to increase in size as the patient grows older. There are not a few cases in which, apart from the recurring attacks of jaundice, there is no disability at all, the patient being able to get about and work hard, even at manual labour, with no further symptoms and with a normal cell count and normal hæmoglobin. During the attacks of jaundice the liver may be found to enlarge, and later, after the attack, to recede.

The case recorded in our list corresponded in most essentials with the foregoing description, except that he was the only member of his family affected. The attacks of anæmia began to affect him severely at the age of $2\frac{1}{2}$ years, and on one occasion at the hospital his hæmoglobin had sunk to less than 20 per cent. and his red blood-corpuscles to less than $2\frac{1}{2}$

millions. His fragility was constantly about 0·55–0·6 per cent. of salt solution. His spleen was considerably enlarged, though not enormous, and varied in size with the severity of the anæmia and the jaundice.

It is an ascertained fact that if for any reason an individual loses his spleen—for example, if it be removed after rupture—the resistance of the erythrocytes to dissolution in salt solution is definitely increased. Whereas in a normal individual hæmolysis takes place in solutions weaker than 0·47 per cent., in such a man hæmolysis may begin only in a solution of 0·3 per cent. The relationship of these phenomena is unknown. Whatever it may be the removal of the spleen in cases of acholuric jaundice is an obvious suggestion, and the results of such removal are in our experience most excellent. After the removal of this patient's spleen his condition at once materially improved, and though he had a recurrence of anæmia, this time without any jaundice, about two months after the operation, four months later he had a normal fragility of the red corpuscles and over five million red corpuscles with 0·65 per cent. of hæmoglobin. Other cases of the same kind similarly treated have responded in the same fashion, and though the explanation of the mechanism is not obvious it is clear that in splenectomy we have a means of removing these individuals from the category of chronic invalids. Not all the sufferers from acholuric jaundice will require such an operation, for many of them are, apart from their occasional yellowish colour, in excellent general health and experience no material drawback from their inherited abnormality.

It is, we think, necessary to point out that in cases of jaundice with splenomegaly and recurrent anæmia the simple examination of the fragility of the red corpuscles will sometimes enable the physician to offer the patient a hope of permanent relief, and that the omission of this examination has in the past led to not a few errors of diagnosis.

An unusual case of polycythæmia.—The remaining case, which we have provisionally placed in the category of congenital anæmia, is, so far as our knowledge goes, unique.

The child was admitted for anæmia, diarrhœa and wasting, and on examination proved to have a consistently high erythrocyte count. In many examinations extending over more than a year she has never been found with less than 6,000,000 erythrocytes per c.mm., and often with 8,000,000 or 9,000,000. Her hæmoglobin, on the other hand, has never been above 90 per cent. of the standard and has been as low as 65 per cent. She has a large soft spleen, and marked rickety changes in the bones. We have never been able to satisfy ourselves that she has a congenital cardiac lesion, and the cause of her erythræmia remains obscure. Meanwhile her health is on the whole good and her rickety lesions are disappearing. She is seldom cyanosed, and at her best looks a normal healthy child.

Examples of Acholuric Jaundice.

CASE 1.—A girl, aged 6 years, was admitted under Dr. Hutchison on October the 11th, 1921, with a history of being yellow from birth. An eight months' child, she was noticed

to have jaundice on the tenth day after birth, and this has persisted ever since. Her only complaint was pain in the groins on walking far. She was breast-fed for two months and then had Nestlé's milk. The mother was twice married, her eldest daughter by the first husband was normal and the fragility of the red blood cells was normal. The first child of the second marriage died at thirteen months of pneumonia and was always pale and had a large abdomen. The second child was the patient.

The father was pale and the red blood cells showed a slight increase of fragility.

A cousin of the father's had her spleen removed twenty years ago for anæmia, and the fragility of her red cells is definitely increased at present.

The patient was a well-nourished child, of a pale yellow colour. There was slight clubbing of the fingers, the spleen reached half an inch below the level of the umbilicus and was very hard; the liver reached three fingers' breadths below. The heart was normal except for a hæmic systolic murmur at the base. The urine was brown and contained no bile. The blood count was as follows: Red cells, 2,300,000; hæmoglobin, 30 per cent.; colour index, '6; white cells, 10,800; polymorphs, 66 per cent.; small lymphocytes, 31 per cent.; large lymphocytes, 3 per cent. The fragility of the red cells was extreme.

The spleen was removed on November the 10th, 1921, and four days later there was no change in the fragility of the red corpuscles.

A section of the spleen showed diffuse fibrosis with giant-cell formation, and these cells contained red blood-corpuscles.

CASE 2.—A boy, aged 6 years, was admitted under Dr. Poynton on January the 1st, 1922. At the age of eight and a half months he was noticed first to have a strange lemon colour. For the last four months he has been having attacks of sickness followed by diarrhœa. During these attacks he is said to be delirious. When an infant he was diagnosed as splenic anæmia. The family history throws no light on the condition. He is a pale, waxy, well-nourished boy. There is no clubbing of the fingers, but there is bossing of the skull and beading of the ribs. The spleen reaches to within two fingers' breadths of the umbilicus and the liver is four fingers' breadths below the costal arch. The heart is normal except for a hæmic systolic murmur. The urine was brown, but did not contain bile. Wassermann negative and Pirquet reaction negative. Blood examination, January the 7th, 1922: Red cells, 1,506,000; hæmoglobin, 20 per cent.; colour index, '6; normoblasts, 4 per 100 white cells; white cells, 15,000; polymorphs, 71 per cent.; small lymphocytes, 21 per cent.; large lymphocytes, 6 per cent.; large mononuclears, 2 per cent.; fragility of the blood was moderately increased up to and including '6 per cent. saline. A month's stay in hospital, in spite of treatment, has produced no improvement in the blood picture and the fragility of the red blood cells. The boy seems slightly improved and the question of splenectomy is still under consideration.

CASE 3.—Boy, aged 2½ years, admitted under Dr. Hutchison, September the 28th, 1921. The child had suffered from bilious attacks and jaundice from eight months of age. He was breast-fed for eleven months. There was nothing in the family history to throw any light on the case. These bilious attacks consist of bouts of vomiting preceded by jaundice which increases in depth and becoming green at the height of the attack and gradually fading. For about a week after this the child is pale. The vomit is clear green with some slime. Preceding the attack there is langour, feverishness and anorexia, together with enlargement of the submaxillary glands. During the attacks the urine becomes a deep yellow colour. Between the attacks the child seems well.

A fat, flabby child, submaxillary and cervical glands palpable. Spleen enlarged and firm, extending down to the level of the umbilical plane. Liver enlarged, one and a half fingers' breadths below costal margin. The urine is a deep yellow colour, acid, urates, acetone and bile present. This observation on the presence of bile was not confirmed at subsequent examinations. Wassermann test negative.

Blood examination: Red cells, 3,870,000; hæmoglobin, 50 per cent.; colour index, '6; white cells, 17,600; polymorphs, 70 per cent.; small lymphocytes 26 per cent.;

large lymphocytes, 2 per cent. ; large mononuclears, 2 per cent. ; normos, 3 per 100 white cells. The fragility of the blood was slightly but definitely increased.

First blood count, September the 29th, 1921 : Red cells, 4,127,000 ; hæmoglobin, 35 per cent. ; colour index, '4 ; normos, 4 per 100 white cells ; white cells, 18,6000 ; polymorphs, 70 per cent. ; small lymphocytes, 19 per cent. ; large lymphocytes, 7 per cent. Treated with iron and left hospital in a slightly improved condition.

Case of Polycythæmia.

Girl, aged 3 years and 4 months. First came under observation when two months old, when she was brought to St. Bartholomew's Hospital, under Dr. Thursfield, for swollen feet. Her colour was not at that time remarked upon.

When a year and eight months old, she was admitted to Great Ormond Street with wasting and diarrhœa, which had been more marked for the past four months.

On admission she was seen to be markedly rachitic and her breathing rapid and grunting. It had always been noisy and remained so. The child had well-marked diarrhœa, and was a slightly cyanosed colour. Her spleen was well below the costal margin.

During the next ten weeks several blood counts were done and they seemed to vary with the degree of diarrhœa, but were always above $6\frac{1}{2}$ million red cells, and rose above 9 million on one occasion. The white count fell from 38,000 on admission to 12,750 on discharge, and the proportions were normal. The hæmoglobin remained just below 90 per cent.

She has been seen at intervals since and her blood count has always shown more than $6\frac{1}{2}$ million red cells. In April, 1922, the spleen was still three fingers' breadths below the costal margin ; she was slightly cyanotic in colour, especially so on exertion. Her rickets had almost entirely disappeared, and her blood count showed $6\frac{1}{2}$ million red cells with a hæmoglobin count of 80 per cent. Her white cells were 10,750, and the proportion of the white cells was normal.

Her Wassermann reaction has been negative on more than one occasion, and there is no clinical evidence that she has congenital heart disease. The family history does not help in this case in the least.

Anæmia gravis.—The most puzzling type of anæmia is that which has received a number of different names, but is perhaps most widely recognised under the title of aplastic anæmia. For many reasons this is an undesirable name, but especially because there is in many severe anæmias an aplastic stage, and because the disease which we are now considering includes some instances which could not be reckoned as aplastic in type. It is probable that in this category there is more than one type, but the signs which may serve to distinguish them have not yet been clearly discerned. In some cases the symptoms and the course of the disease and the pathological appearances remind us of leukæmia, although the blood, when studied microscopically, has not the characters of the fully-developed leukæmia ; in others the clinical phenomena appear to bring the disease within the conception of the purpuras ; in others again the resemblance to the classic type of idiopathic pernicious anæmia makes us forget for the moment the striking differences ; and yet in others we seem to be dealing merely with severe types of secondary anæmia.

We have preferred to use the name of anæmia gravis for this group, and have recorded three cases under this heading with the full conscious-

ness that in each of them there is something to be said for their inclusion in some other group: for instance, Case 1 might be considered as a purpura, and Case 3 as an example of an atypical leukæmia; but after considering these possibilities these three cases seem to us to stand by themselves as examples of a form of anæmia not very uncommon in children, which holds the place in the diseases of children which is occupied by the pernicious anæmia of adults.

When we examine these cases in detail we find that all three were children of eleven years of age, and this is the first point on which we lay stress. The type of anæmia which we are now considering does not occur in infants and is seldom seen before seven or eight years of age, and more usually a year or two later. Among eleven such cases seen by one of us the youngest was aged seven and all the others were over ten years of age.

Secondly the history of the patient, unlike that of most other types of anæmia, usually dates back many months or even years. In these three cases the patients had been ailing, or there had been hæmorrhage or pallor for six months, a year, and seven years respectively, before their condition became really serious. The same feature has struck us in other cases of a similar type, whereas in leukæmia, purpura, lymphadenoma, and "school-age" anæmia it is unusual, we think, to obtain a history antedating the serious condition by more than a few weeks. These diseases when present generally give rise to some impressive phenomenon entailing medical attention early in their course. In this group, on the contrary, the failure of health is so gradual that although it is noted it is assigned to some passing indisposition and for many months it is not taken seriously.

When we pass to the consideration of the clinical symptoms, the most striking feature is the extreme degree of the anæmia. The hæmoglobin is always less than 30 per cent., sometimes less than 20 per cent., and the red blood-corpuscles reduced to half their normal number or less. The result is a transparent pallor of the skin and mucous membranes which is most striking. With this diminution in the erythrocytes and the hæmoglobin is usually associated a marked diminution in the numbers of the white corpuscles, a diminution which seems to take place chiefly, though not exclusively, at the expense of the polymorphonuclear leucocytes. Thus in the three cases in our list, Case 1 had 3,400 leucocytes, of which 2,000 were polymorphonuclear; Case 2 had 4,400, of which again a little more than 2,000 were polymorphonuclear; and Case 3 had 5,200, of which 1,800 were polymorphonuclear. The normal figure of the polymorphonuclear leucocytes at this age lies between 5,500 and 7,000.

Although this feature is usually present, there are occasional exceptions; in one case seen recently there was a well-marked polymorphonuclear

leucocytosis. It is of interest to note that in this instance recovery from a desperate condition was unusually rapid.

There is, of course, as in all severe anæmias, much poikilocytosis, and in some cases there appear nucleated red corpuscles in some numbers, and though in these three cases no myelocytes were observed, we have seen them occasionally in similar patients, though never reaching 1 per cent. of the total leucocytes. Other abnormal forms are not observed.

The next point of interest is the occurrence of hæmorrhage. Extensive or extreme hæmorrhage is very unusual; nothing like the bleeding seen, for instance, in purpura hæmorrhagica; yet in every case there is a marked tendency to bleed; epistaxis in the first case; intestinal bleeding in the second; and subcutaneous and submucous hæmorrhages in the third. Retinal hæmorrhages also are common, as indeed in most severe anæmias. The point on which we desire to lay stress is that hæmorrhage of any degree is rather an accident and does not take a prominent place in the symptomatology of this disease, as it does, for instance, in purpura hæmorrhagica and in some cases of acute leukæmia.

The liver and the spleen are always enlarged, but the latter is often of quite moderate size. The superficial lymphatic glands are not enlarged, or if occasionally the cervical glands are palpable the degree of enlargement is no more than is usually met with in children of the type of hospital patient. The tonsils also may be increased in size, but again no more than is common. The large septic bleeding tonsils of some cases of purpura and leukæmia are not seen.

The course of the disease is variable. The larger number of the patients drift steadily downwards and die of exhaustion; in some cases the red cell count sinks below half a million per c.mm.; in others it remains somewhere about two million till death. In the patients who recover, convalescence is slow, and the restoration of the blood to normal may take many weeks or months; the most favourable sign in this respect is, we believe, a steady increase in the polymorphonuclear leucocytes.

Post mortem there are the usual appearances connected with severe degrees of anæmia, but not as a rule anything distinctive. The condition of the bone-marrow is of importance, but unfortunately our observations on this point are too few in number to allow of any generalisation. In all the cases which we have seen the bone-marrow has been white, not in the least resembling that of the pernicious anæmia of adults. The liver in one case was of a chocolate tint and gave a strong Prussian blue reaction, but in the other case in our list it was merely anæmic and gave no blue reaction.

In Case 3 one kidney was the seat of numerous small abscesses, chiefly distributed in the cortex; during life a small quantity of pus had been

observed on one occasion in the urine about ten days before death, but on all other occasions none had been found. It does not seem probable that it was more than an accidental infection.

We conclude, therefore, that the disease from which these children suffer is a grave anæmia, which is not a leukæmia nor a purpura, which is not related to lymphadenoma, and has many points of difference from the pernicious anæmia of adults. It is not necessarily fatal, though the majority die. It is not really aplastic, since there is often evidence at some time or other during the course of the illness of bone-marrow activity. As regards its pathology we have sought in vain both during life and after death for any direct evidence of bacteria infection, and in this respect our experience resembles similar attempts in the pernicious anæmia of adults. Yet just as in that disease there is a conviction in the minds of many physicians that ultimately the cause will be traced to the presence of some focus of infection, so in these children we think that it is probable that there is some infective process at work producing the poisons which act so disastrously on the hæmopoietic system.

Diagnosis is in our view most difficult. Perhaps the greatest difficulty is to decide whether a given case is or is not an example of atypical leukæmia. We believe that there are cases of so-called "aleukæmic" leukæmia which present the same anæmia, the same leucopenia, and the same atypical course. But in such cases the differential count of the leucocytes is strikingly dissimilar. In such leukæmias the principal leucocyte present is the "lymphocyte," and as the disease progresses this cell tends more and more to predominate. In the disease which we are considering, on the other hand, the lymphocytes present are the normal lymphocytes of the blood and they are present in diminished numbers, though as we have pointed out, often less diminished than the polymorphonuclear cells. Moreover, as the disease progresses they do not tend to become more numerous. Even after death with an opportunity of examining the tissues, it is sometimes hard to determine whether there has been a leukæmia present; in some of the cases which clinically were typical acute leukæmia, there has been little infiltration of the tissues. But in all cases of clinical leukæmia the bone-marrow has been conspicuously red, quite unlike the white anæmic marrow of this group. Further, though in some cases of leukæmia the superficial glands are not enlarged, we have not seen any case in which the glands were not found enlarged or hæmorrhagic after death. It would appear that these two signs, the redness of the bone-marrow and the condition of the lymphatic glands, especially of the mesenteric group, afford the most certain post-mortem indications of the nature of the disease.

Supposing we have dismissed the diagnosis of leukæmia, we have still

to consider other possibilities. There are instances of purpura hæmorrhagica in which the anæmia and the leucopenia are as striking as in this group. Apart from the marked hæmorrhages which are so characteristic of this disease, and which form no part of the symptomatology of the disease under consideration, in the few cases which we have seen the bone-marrow has been red rather than white. It is, we believe, more difficult to separate the cases of acute purpura from those of acute leukæmia than to distinguish anæmia gravis from purpura.

Lymphadenoma is another disease which at times presents the same leucopenia and severe anæmia; we have twice known lymphadenoma proved post mortem to be that disease diagnosed clinically as "aplastic anæmia." The presence of enlarged glands in both instances, not only in the neck but in the axillæ, should have led to a more correct diagnosis.

Lastly there is the question of pernicious anæmia such as is seen in adults. That this disease does occur in children is possible, though it is certain that most of the cases reported under this heading are examples of other forms of severe anæmia. We have never seen a case in a child which conformed to the type of adult pernicious anæmia, though we have met with several in which that diagnosis has been discussed, only to be discarded either by means of accurate blood counts or when the post-mortem examination has revealed the true nature of the affection. This disease bears much resemblance to the pernicious anæmia of adults, but differs from it in two directions: first in the fact that while in pernicious anæmia there is usually abundant evidence of bone-marrow activity that is exceptional in anæmia gravis; secondly, in the true pernicious anæmia of adults there is, we believe, almost without exception a red marrow, whereas in this disease the marrow is white. From the purely clinical aspect there is nothing to separate the two conditions.

The prognosis of anæmia gravis is never good, for the majority go steadily downhill, and no treatment seems to be of much benefit to them. And yet now and then a patient who has nothing to distinguish his condition from that of the fatal cases proceeds to complete recovery. The patients whom we have seen recover have for the most part been treated with serum subcutaneously or intravenously. The serum may be either human or from the horse. Transfusion has in the few instances in which it has been employed appeared to be of little benefit.

Examples of Anæmia Gravis.

CASE 1.—Boy, aged 11 years, admitted under Dr. Poynton, September the 21st, 1920. He had suffered from attacks of sickness and pain in the head for fourteen months. The family and previous histories threw no light on the case. In July and December, 1919, and April, 1920, he had attacks of vomiting and pains in the limbs, and in the December attack "yellow jaundice" for ten weeks.

On admission he had a lemon tint, and the heart was rapid with a basal systolic bruit. These were the only positive clinical signs. The blood count was as follows: Red cells, 3,260,000 per c.mm.; hæmoglobin, 25 per cent.; colour index, '4; white cell count, 4400; polymorphonuclears, 58 per cent.; lymphocytes, 41 per cent.; eosinophils, 1 per cent.

He remained in the hospital with the same negative symptoms until Christmas. The outstanding feature was the failure of every remedy to produce a substantial improvement in the anæmia.

In October the red cell count was 2,810,000 per c.mm.; hæmoglobin, 25 per cent.; colour index, '4. The white cell count, 6400 per c.mm.

In November there was no change.

In December there was some improvement: Red cell count, 3,172,000 per c.mm.; hæmoglobin, 30 per cent.; colour index, '48.

The differential counts had shown a preponderance of polymorphonuclear cells.

In January he was out of hospital, and the improvement continued. Red cell count, 3,650,000 per c.mm.; hæmoglobin, 32 per cent.; colour index, '4. The white cells had risen to 11,000 per c.mm.

In February the red cells fell to 2,670,000 and the white cells to 8600 per c.mm. He was readmitted on March the 9th, 1920, with dyspnoea, rheumatic pains and swelling of the feet. His face showed the same lemon colour. The red cell count was 1,580,000 per c.mm.; hæmoglobin, 20 per cent.; colour index, '6; white cell count, 4200 per c.mm.; polymorphonuclears, 71 per cent.; lymphocytes, 27 per cent.; nucleated red cells were present, 2 per cent.

On April the 1st there was much improvement in the red cell count up to 4,106,000 per c.mm. About the 9th there was a sudden increase in the pallor, and the red cell count fell to 1,856,000 per c.mm.; hæmoglobin to 20 per cent.; colour index, '4. At this time the spleen became palpable and the liver had increased in size, almost reaching to the level of the umbilicus.

In May there was increasing pallor and some vomiting. The blood count showed: Red blood cells, 2,750,000 per c.mm.; hæmoglobin, 20 per cent.; colour index, '3; white blood cells, 7600.

In June all the symptoms of profound anæmia increased and the temperature rose and became irregular. At this time it was ascertained that the patient's serum did not agglutinate or hæmolyse his father's red corpuscles. The red cell count had fallen to 1,480,000 per c.mm., and nucleated red cells were present, 74 per c.mm. On June the 12th, 200 c.c. of the father's blood was transfused, but a large vomit followed, the temperature rose to 105·8° F., and the boy died next day.

The fragility of the red corpuscles was normal, the Wassermann reaction negative, and no ova were found in the faeces.

The necropsy was remarkably negative except for two features: (1) The bone-marrow was white. (2) In the lesser curvature of the stomach was a tumour projecting into the cavity about the size of a pigeon's egg, which proved on microscopy to be a fibromyoma. The mucous membrane over it was discoloured at two points, but there were no signs of bleeding from the mucous surfaces. There was no Prussian blue reaction in the liver or spleen, no cellular infiltrations in the viscera, and no valvular disease.

CASE 2.—Girl, aged 12 years. Admitted under Dr. Thursfield, January the 22nd, 1921, for progressive weakness and anæmia since July, 1920. She was an only child and an orphan, losing her father in the war, and her mother from heart disease. She developed earache after swimming in the summer and never seemed to be well after this. Three times during December there had been bleeding from the gums. There was no history of sore throat.

The child was very pale, but there was no purpura or œdema. The heart was rapid with basal systolic murmurs. The cervical glands were easily felt and the liver and spleen were

both palpable. The gums were slightly cedematous, the tonsils healthy. The urine was normal, and there was no evidence of respiratory disease.

The blood count was as follows: Red blood cells, 1,190,000 per c.mm.; hæmoglobin, 30 per cent.; colour index, 1·3; megaloblasts, 2 per cent.; white blood-cell count, 5200 per c.mm.; polymorphonuclears, 35 per cent.; lymphocytes, 63 per cent.; eosinophils, 2 per cent.

The history in hospital was one of continual hæmorrhages; epistaxis, purpura, bleeding from the gums, and retinal hæmorrhages. On January the 27th a colony of streptococci was isolated from the blood. The temperature throughout was raised and irregular.

Blood 6 oz. was injected intravenously from the aunt, whose blood as donor was suitable. Antistreptococcic serum was also given. On March the 3rd albumin and pus were detected in the urine, and death occurred on the 11th.

The blood count on the 9th of March showed: Red blood cells, 625,000 per c.mm.; hæmoglobin, 10 per cent.; colour index, ·9; white blood cells, 2800 per c.mm.; polymorphonuclears, 66 per cent.; lymphocytes, 34 per cent.; the platelet count showed 34,000 per c.mm.

Autopsy.—The fat was golden yellow, muscles dark red, numerous subserous petechiæ were present. There was no organic heart disease. The liver was chocolate-brown and gave the Prussian blue reaction. There was some perisplinitis. The right kidney showed evidence of pyelonephritis. The bone-marrow was pure white and gave no Prussian blue reaction. There was no cellular infiltration of the viscera. The microscopy of the right kidney showed multiple abscesses throughout.

CASE 3.—This patient, who has apparently recovered, was a boy, aged 11 years, admitted under Dr. Poynton, who gave a history of bleeding from the mouth and nose at intervals for the last four years. There was no hæmophilic pedigree.

When admitted to hospital he was very white, with pale lips, foul breath and carious teeth. His spleen was felt just below the costal arch. There were some petechiæ and functional cardiac murmurs. The temperature was irregular, between normal and 100° F.

The blood examination showed: Red cells per c.mm., 2,200,000; hæmoglobin, 20 per cent.; colour index, 0·48; white cells per c.mm., 3400; polymorphonuclears, 60 per cent.; lymphocytes, 40 per cent. Coagulation time normal.

The boy improved and a month later his red cell count had risen to 4,127,000 per c.mm. Carious teeth were extracted and the mouth was thoroughly cleansed. Improvement steadily continued until five weeks later. He was getting up when he commenced to relapse with increasing pallor and petechiæ on the arms and legs.

The blood count was now: Red cells, 2,980,000 per c.mm.; hæmoglobin, 28 per cent.; colour index, ·5; white cells, 5400 per c.mm.; polymorphonuclears and mononuclears, 50 per cent.

The spleen, which had diminished in size, now became again palpable. Enforced rest produced a gradual improvement which has been maintained.

Three months after leaving the hospital the blood count was as follows: Red blood cells, 4,678,000 per c.mm.; hæmoglobin, 75 per cent.; colour index, 0·8; white cell count, 7600 per c.mm.; polymorphonuclears, 74 per cent.; mononuclears, 26 per cent.

Later accounts from his parents show that he is keeping well.

Reviewing these three cases we first direct attention to the blood picture in Case 2, viz., red cells, 625,000 per c.mm.; hæmoglobin, 10 per cent.; colour index, ·9; white cell count, 2800 per c.mm.; differential count, polymorphonuclears, 66 per cent., lymphocytes, 34 per cent.

An analysis of this shows the extreme fall in the red count and hæmoglobin and leucopenia with a normal differential count. If a count such

as this—that is, one with all the evidence of a total failure in blood formation—were invariable, the widely-used name of “aplastic anæmia” would be a good one. If, however, we take Case 1 we find on the other hand very clear evidence of reaction and blood-formation during the illness. A low red count mounting rapidly to 4,000,000 per c.mm. cannot be claimed as an aplasia.

We realise that a disease with so many negative features as this is, however, likely to be defined in accordance with individual experience, and it is possible that the three examples given here may not be accepted as “aplastic anæmia,” or, as we would term it, anæmia gravis, by other observers.

Case 1 may be claimed as a secondary anæmia due to overlooked bleedings from the tumour in the wall of the stomach. Case 2 as an anæmia resulting from a septicæmia the result of pyelonephritis, and associated also with a septic mouth. The third as anæmia resulting from a septic mouth.

We do not deny that an anæmia gravis may arise from all these causes, and others as yet unknown; indeed, it is our conception of this disease that it is secondary to some blood poison, infective or otherwise. If there is no demonstrable cause then perforce we are obliged to call it a primary anæmia gravis. And when we use this term we mean a condition different to leukæmia or chlorosis, or acholuric jaundice, etc. These cases show these differences, and in particular the white appearance of the bone-marrow is a most remarkable feature only met with in anæmia gravis. It will be noticed that the cases were children about 11 years, that the illnesses were slow and mysterious in origin. Also that the colour of the face might be icteric and the spleen slightly enlarged. Towards the end there was much dyspnœa, fever and general listlessness and weakness.

Case 1 showed striking remissions and his illness resembled closely an adult pernicious anæmia with its duration compressed from years into months.

Although writers have insisted upon the wide differences between anæmia gravis in childhood and pernicious anæmia in the adult, we are inclined to think that the essential resemblance is much more convincing, and to believe that the differences do not lie so much in the nature of the disease as in the fact that we are dealing in one case with an adult, in the other with a child.

There are rare examples of complete recovery in adult pernicious anæmia, and the third of our cases is interesting from this point of view.

The possibility of recovery makes the prognosis at the present time a very difficult one, and bearing upon this a remarkable case recorded by

Porter Parkinson in the *BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1919, xvi, pp. 1-4, may be referred to.

A boy, aged 9 years, profoundly anæmic and puffy, with bleeding gums, sore mouth and petechiæ, but with no enlargement of the liver or spleen, was admitted to hospital with a blood count as follows: Red cells, 1,200,000 per c.mm.; hæmoglobin, 20 per cent.; colour index, 0.9; no nucleated cells; white cells, 800 per c.mm.; polymorphonuclears, 20 per cent.; lymphocytes, 72.5. There were numerous hæmorrhages. The boy went from bad to worse, and was transfused with citrated blood on two occasions, when alarming collapse developed, and he became comatose after the second transfusion and was taken home to die. There he remained incontinent and unconscious for a fortnight and then slowly improved. His red cell count is recorded as sinking to 580,000 per c.mm., and the leucopenia with great diminution in polymorphonuclear leucocytes had persisted. In January, 1919, eleven months later, he was in good health, with a blood count of 3,960,000 red cells per c.mm.; hæmoglobin, 65 per cent.; colour index, 0.8; white cell count, 5800 per c.mm.; polymorphonuclear leucocytes, 65 per cent.; mononuclears, 32 per cent.

From the blood counts it seems difficult to exclude a lymphocytic leukæmia, but the view held by Parkinson was that of an "aplastic anæmia" and the recovery would favour this. In any case this illustrates the remarkable recuperative powers that are possible in these grave anæmias, and which in this instance appeared to have developed under negative treatment at home, rather than active measures in hospital.

Such a case raises the question whether in aplastic anæmia there may develop a relative preponderance of lymphocytes in the differential count. This certainly occurred in our Case 2.

Our experience of leukæmia has been that the improvements have not been maintained, but an inquiry from Dr. Parkinson upon this point over a year later resulted in his expressing the belief that he would certainly have heard of any relapse in this case.

We have already commented upon the gastric tumour, pyelonephritic and septic mouths in our cases, and pointed out in the clinical histories that these factors seemed to be rather concurrent events than exciting causes, although to those who did not actually see them this statement may seem far-fetched. When, however, we come to the problem of cardiac infection and anæmia gravis we may find sometimes the utmost difficulty in making a differential diagnosis. There are many clinical features in common—such, for example, as the fever, the pallor, the long course, the rheumatic pains, the enlarged spleen and the liver, the breathlessness and purpura.

Cardiac infections and grave anæmia.—We are accordingly led here to comment upon an interesting point in the study of the grave anæmias in childhood dependent upon the behaviour of the heart sounds, which, in our experience, may be misleading even to careful observers. As the anæmia progresses the first sound at the impulse becomes short and abrupt,

and if in addition it is slightly reduplicated, the simulation of mitral stenosis is very close. We have not detected in such cases a definite thrill, but there is invariably a soft systolic murmur after the abrupt first sound. When the degree of anæmia is very profound a *diastolic* murmur may also become evident at the base, with its maximum usually just to the left of the sternum in the second intercostal space. When in addition there are fever, purpura and enlargement of the spleen, the resemblance to a progressive endocarditis is so close as to give rise to the greatest difficulty in the diagnosis. It is equally remarkable when there is improvement in the anæmia how completely these cardiac signs alter and return to the normal.

The following case is a striking example of this difficulty which we were unable to solve satisfactorily even after prolonged and careful study.

A girl, aged 11 years, was admitted to hospital on April the 5th, 1921, for anæmia and headache, pains in the limbs, and breathlessness of four weeks' duration. In the last five days she had become a peculiar yellowish colour. There was a history of chorea some years previously. Her mother had suffered from rheumatic fever three years previously and all the three children (girls) had suffered from chorea. They lived in a Welsh valley and in a damp, insanitary house, and the parents were first cousins. This child had had measles, chickenpox, and scarlet fever.

The pallor was striking, and with the rheumatic family history suggested at first glance either a virulent carditis or a malignant endocarditis of rheumatic or septic origin.

Examination showed an enlarged heart with loud, apical and basal systolic murmurs and a first sound so short and abrupt as to suggest a mitral stenosis. Pulse 140 to the minute. The liver was 3 in. below the costal margin and the spleen was also much enlarged. The fingers were clubbed a slight degree. There were no Osler's spots. The temperature was irregular, varying between 100·2° F. and 102·5° F.

There were no hæmorrhages. It was clear that on the diagnosis of malignant endocarditis all the symptoms including the enlarged liver and spleen could be explained, and that the abrupt first sound was not due to mitral stenosis but to the cardiac anæmia—these symptoms could be equally explained by an anæmia gravis. The first blood count was as follows: Red cells, 1,960,000; hæmoglobin, 25 per cent.; colour index, '6; normoblasts, 2 per cent.; white cells, 16,400; polymorphonuclears, 75 per cent.; lymphocytes (small), 17 per cent.; large lymphocytes, 7 per cent.; large mononuclears, 1 per cent.; blood culture sterile. The results of the blood examination favoured a secondary anæmia.

There were no nodules, or arthritis or other evidence of simple acute rheumatism; no enlargement of the glands. The mouth was dirty, the tongue coated, and breath foul. There were no respiratory or nervous symptoms. The retina showed numerous hæmorrhages. The urine was free from blood and albumin. There was great doubt expressed as to the cardiac condition—some thinking there was mitral stenosis—others that all the cardiac sounds could be explained by the profound anæmia.

The course of the illness was a remarkable one. The temperature fell gradually, reaching normal seventeen days after admission. Anti-rheumatic vaccine was commenced on the 11th and persisted with through the illness. Cough, harsh breathing and crepitations developed at the left base, but there was no hæmoptysis. At the end of the month there was a definite improvement, the temperature was normal, the spleen smaller, and the red cell count had risen to 3,160,000 per c.mm., the colour index to '9, the hæmoglobin to 55 per cent. The condition of the heart had improved, and the belief that there was organic valvular disease was shaken.

On May the 9th, seventeen days later, the lymphatic glands on the left side of the neck began to enlarge and became tender, and the temperature rose to 102° F. A severe tonsillitis developed rapidly. The spleen enlarged, there was præcordial pain, and a systolic and diastolic aortic murmur were heard. On the legs, in the popliteal spaces, buttocks and nose, small blebs developed which on rupture left small raw areas.

On May the 15th there was severe abdominal pain, rapidly followed by profuse hæmorrhage from the bowel, and tubular breathing was detected at the left base. The diagnosis now swung round strongly in favour of malignant endocarditis, and the outlook appeared to be hopeless. The right kidney now enlarged and became tender, but no blood or albumin appeared in the urine. After the hæmorrhage the spleen became smaller, receding from the level of the umbilicus. Purpuric spots appeared on the knuckles later, and with a reappearance of signs of mitral stenosis, a cantering cardiac rhythm, and the aortic murmurs the picture of an active endocarditis appeared to be complete.

Gradually an improvement set in, the temperature slowly falling, the spleen becoming smaller and firmer, and the child, now emaciated, began to feel much better and to gain ground though her colour was definitely icteric. This improvement was steadily maintained, although the spleen was noticed to vary in size from week to week. In August, three months later, no bruits were detected, and the diagnosis of endocarditis seemed to be very unlikely. In September she was stronger and the heart appeared to be normal in size and as to the sounds, but the spleen was palpable three fingers' breadths below the costal arch. The final blood picture was as follows: Red cells, 4,360,000; hæmoglobin, 60 per cent.; colour index, '7; white cells, 14,800; polymorphs, 63 per cent.; small lymphocytes, 28 per cent.; large lymphocytes, 6 per cent.; large mononuclears, 1 per cent.; eosinophils, 1 per cent.; basophils, 1 per cent.

The patient left hospital in September with the diagnosis unsettled.

VON JAKSCH'S ANÆMIA PSEUDOLEUKÆMICA INFANTUM.

In our list there are four cases which are included under this heading. The criteria which we have adopted are that the child should be under the age of four years, that the anæmia should be severe, that there should be an unusual proportion of myelocytes present in the peripheral blood, and that the spleen should be of considerable size. In addition, though not invariably present, normoblasts and megaloblasts are commonly found in the films of the blood.

Judged by these standards three of the four cases undoubtedly belong to the category of von Jaksch's disease, but as to the fourth (No. 1 in the list) there is room for hesitation. In this patient the hæmoglobin was certainly unusually high, and the proportion of myelocytes unusually low, nor had the spleen such a size as is usually associated with the disease. Moreover the erythrocyte count was higher than we should have expected and the improvement in the child's condition was exceptionally rapid. Still, the general appearance of the patient, coupled with the appearance in the blood of myelocytes, normoblasts and megaloblasts, incline us to believe that this is an example either of a comparatively late stage in convalescence from the disorder, or possibly an example of an exceptionally mild degree of the affection. But we must not fail to admit that such a case affords some support to the arguments of those who, unlike

ourselves, believe that von Jaksch's disease is not a clinical entity, but an unusually severe stage of any infantile anæmia, the uncommon features being merely an expression of the severity of the intoxication. If such a view be accepted the case represents a transitional stage between an ordinary "chlorotic" anæmia, and the severe grade of anæmia known by von Jaksch's name. We have in the first part of this paper given our reasons for dissent from this hypothesis and continue to hold that von Jaksch's disease is a separate clinical entity distinct from other forms of anæmia.

Of the other three cases there is nothing especial to note. Two recovered and one died. The post-mortem examination in this case revealed the usual conditions: petechiæ in many organs, an old blood-clot in the pelvis of one kidney, general moderate enlargement of the lymphatic glands and hypertrophy of the lymphoid tissue throughout the body, and a large firm spleen with marked fibrosis.

In all three cases myelocytes were present to the numbers of 1200–2000 per c.mm., and normoblasts and megaloblasts in varying proportions; the hæmoglobin was 30 per cent. or less; the red cells from 2,000,000 to 3,500,000 per c.mm., and in the acuter stages of the disorder a marked leucocytosis with a preponderating increase in the normal lymphocyte of the blood. Together with the great size of the spleen and the chronic course of the illness these patients appear to us to be properly classed as examples of von Jaksch's disease.

An Example of von Jaksch's Anæmia.

D. A—, female, aged 8 months. Was admitted under Dr. Hutchison on June the 12th, 1920. The infant had been wasting since two weeks of age, and had been fed for three weeks on cow's milk and barley water, six weeks on Nestlé's milk and then on Ideal milk. There had been repeated attacks of diarrhœa and vomiting. The child had congenital club feet. There were no teeth and there was some beading of the ribs. The abdomen was very large. The spleen extended three fingers' breadths below the costal arch, the liver one finger's breadth. There were some enlarged glands in both axillæ. Beyond these features there was nothing of note except pallor.

The blood count was as follows: Red blood cells, 3,930,000 per c.mm.; hæmoglobin 32 per cent.; colour index, .4; normoblasts, 5 per cent.; megaloblasts, 2 per cent.; there were poikilocytosis and polychromatophilia. White cells, 15,200 per c.mm.; polymorphonuclears, 36 per cent.; small lymphocytes, 33 per cent.; large lymphocytes, 16 per cent.; large hyalines, 3 per cent.; eosinophils, 1 per cent.; transitionals, 1 per cent.; neutrophil myelocytes, 9 per cent.; eosinophil myelocytes, 1 per cent.

The child stayed in hospital until 1921 and improved. The spleen became smaller and in the last count there were no myelocytes.

A NOTE ON THE QUESTION OF THE CAUSATION OF POSTURAL OR ORTHOSTATIC ALBUMINURIA.

By F. PARKES WEBER, M.A., M.D., F.R.C.P.

IN the discussion on the after-history of cases of albuminuria occurring in adolescents, which took place on May the 2nd, 1911, at the Medical Section of the Royal Society of Medicine, I made some remarks on the favourable prognosis in such cases, and said that I did "not think that albuminuria occurring in apparently healthy adolescents could justly be regarded as belonging to any other class than orthostatic albuminuria, unless it could be definitely ascertained that the urine passed immediately on getting out of bed after the night's rest contained albumin." In a paper in the *BRITISH JOURNAL OF CHILDREN'S DISEASES* in 1911,* I referred to individual cases that I had met with, and since then I have not heard of a bad result, due to the albuminuria, in any of the cases in question, nor in any cases that I have met with since then. If anything, I am now still more convinced that in uncomplicated cases of orthostatic albuminuria the life may be regarded as a normal one from the life assurance point of view.†

In some way or other true orthostatic albuminuria is often connected with the tall "lanky" build of body suggestive of visceroptosis—the so-called "morbus asthenicus" or "asthenic constitution"—in which there is often some degree of lordosis likewise present. Hideo Saito (Japan), in his "Clinical Investigations on Orthostatic Albuminuria" in 1921,‡ concludes that orthostatic albuminurics have an asthenic constitution, that about half of them show lordosis, and that a large majority of them are in a state of vagotonia.

Jehle was the first to draw attention (1908 and 1909) to lordosis as an actual exciting cause, and as a result of his writings on the subject many papers were published under the heading "lordotic albuminuria." It is certain that in cases of orthostatic albuminuria temporary albuminuria can sometimes be produced by *artificial* lordosis, even when the patient remains lying in bed. The suggested explanation has been that in cases of lordotic albuminuria the albumin comes from the left kidney only and has to do with lordotic pressure on the left renal vein, which has to pass in front of the vertebral column and the aorta.

* F. Parkes Weber, "Remarks on Orthostatic Albuminuria," 'Brit. Journ. Child. Dis.,' 1911, viii, pp. 385-390.

† F. Parkes Weber, "Albuminuria in Relation to Life Assurance," 'Brit. Med. Journ.,' 1921, i, pp. 78-80.

Hideo Saito, 'Am. Journ. Dis. Child.,' 1921, xxii, pp. 388-401.

Carl Sonne, of Copenhagen, in his paper, published in 1920,* on the ætiology of orthostatic albuminuria, arrived at that conclusion from his observations on six (five females and one male) typical cases of orthostatic albuminuria between the ages of 13 and 17 years. In these cases he catheterised both ureters and found that the albumin actually came only from the left kidney. Sometimes, according to Sonne, temporary anuria may be produced by catheterisation of the left ureter, as was known to Jehle. Sonne was able also to confirm the findings of Jehle and others, according to whom both granular and hyaline tube-casts can often be detected in the albuminous urine from cases of orthostatic albuminuria.

All this fits in with the well-known fact that in cases of chronic passive congestion of the kidneys, from various causes, the urine often contains albumin and few or many tube-casts; and in animal experiments albuminuria has been artificially produced by the circulatory disturbance connected with ligature of a renal vein or artery (Ludwig, Senator, etc.).

A remarkable case has been recorded by K. Vorpahl † of orthostatic albuminuria in which the albumin was proved by ureteric catheterisation to come from the right kidney. At first sight this case seems to be directly opposed to the above-mentioned findings of Sonne, who in his cases showed that the albumin came from the left kidney. Vorpahl's patient, however, who was a girl, aged 12 years, had spinal scoliosis, but hardly any appreciable lordosis, and it was suggested that the right renal vein and artery were pulled on owing to their being on the concave side of the lumbar scoliotic bend. The albuminuria occurred when the child was standing and when she was sitting up, and it was suggested that both these positions, in some way or other, intensified the drag on the right renal vessels, whilst the recumbent position lessened it.

W. Rieser and S. L. Rieser, of New York, in their recent paper on the "Ætiology of Orthostatic Albuminuria" (1922) ‡ confirm the mechanical theory, namely, that the albuminuria is due to passive venous congestion of the left kidney. They conclude that in such cases the left renal vein is compressed between the abdominal aorta and the mesenteric artery, when the aorta is pushed forward as a result of lordosis or when the mesenteric artery is stretched by ptosis of the mesocolon.

* Carl Sonne, "Beitrag zur Aetiologie der lordotischen (orthostatischen) Albuminurie," 'Zeitschr. für klin. Med.,' 1920, xc, pp. 1-6.

† K. Vorpahl, "Ueber einseitige orthostatische Albuminurie," 'Berl. klin. Woch.,' 1910, xlvii, p. 827.

‡ W. Rieser and S. L. Rieser, 'Journ. Amer. Med. Assoc.,' 1922, lxxviii, pp. 644-647.

Nevertheless, it is clear that lordosis cannot be the only factor in the production of orthostatic albuminuria, even in cases in which ureteric catheterisation proves the albumin in the urine to come only from the left kidney. There must be an individual predisposition of some kind. It is often in the morning that the albuminuria is most marked, even though the orthostatic position is maintained at other times of the day. Besides this cyclic character of the albuminuria, the age-incidence has to be remembered, though it is a mistake to think that orthostatic albuminuria is altogether confined to childhood, puberty, and very early adult life. It may be met with up to twenty-five to thirty years of age and possibly even later.* D. C. Parmenter† quotes T. B. Barringer‡ as stating that ten to eleven years after the examination of some seventy men who originally had albuminuria, 40 per cent. still showed it, though none of these 40 per cent. had nephritis or symptoms thereof. I do not, however, know in how many of Barringer's cases the albuminuria was of the true orthostatic type.

Moreover, lordosis does not always produce orthostatic albuminuria, and this fits in with the fact that chronic passive congestion of the kidneys in heart disease, etc., is not in some cases (for a long time at least) accompanied by albuminuria.

In this connection I should like to mention, for what it is worth, that in two young men with extreme cyanosis from congenital heart disease I found that orthostatic albuminuria was present. The first case was that of a man, aged 22 years§; the age in the second case was 29 years.|| These are the only cases of congenital heart disease (probably pulmonary stenosis) in patients who have survived childhood in which I have been able to examine the urine for orthostatic albuminuria. But F. Eigenberger¶ refers to the case of a young man with polycythæmia rubra (secondary to cardiac disease, if I rightly understand him) in whom the presence of orthostatic albuminuria was discovered; a lordotic position of his body caused his urine to contain albumin, a little blood and abundant cylindroids. Orthostatic albuminuria was likewise found in a young man, aged 18 years, whose case, described by G. Herrnheiser,**

* Cf. F. Parkes Weber, 'Brit. Med. Journ.,' *loc. cit.*

† D. C. Parmenter, "Observations on the Significance of Functional Albuminuria in Young Men at Harvard University," 'Boston Med. and Surg. Journ.,' 1920, clxxxiii, pp. 677-681.

‡ T. G. Barringer, "Prognosis of Albuminuria," 'Arch. Int. Med.,' 1912, ix, p. 657.

§ F. Parkes Weber, "Congenital Heart Disease, with Extreme Secondary Polycythæmia and Orthostatic Albuminuria," 'Edinburgh Med. Journ.,' 1909, New Series, ii, p. 18.

|| Weber and Dörner, "Congenital Pulmonary Stenosis," 'Proc. Roy. Soc. Med.,' Clin. Sect., 1911, iv, p. 85.

¶ F. Eigenberger, 'Zentralbl. f. inn. Med.,' 1920, xli, p. 354.

** G. Herrnheiser, 'Deut. Arch. f. klin. Med.,' 1919, cxxx, pp. 315-330. There was no splenomegaly. The brachial systolic blood-pressure was 110 mm. Hg.

was, I suppose, one of secondary polycythæmia rubra due to some kind of chronic circulatory disturbance.

The arguments in favour of the mechanical factor in orthostatic albuminuria are supported by certain cases of so-called *clinostatic albuminuria*, in which apparently some mechanical factor, such as the pressure of an enlarged spleen, gives rise to albuminuria in the recumbent but not in the standing position. Sir H. D. Rolleston* observed this kind of albuminuria in cases of leukæmia, hepatic cirrhosis and splenic anæmia and referred to a similar observation by H. Falkenheim† in a man, aged 50 years, with hepatic cirrhosis and an enlarged spleen. Dufour and Muller‡ describe another kind of "clinostatic albuminuria" in a boy, aged 16 years, which they attribute to nervous exhaustion from masturbation. J. A. Amblard§ has recorded "nocturnal clinostatic albuminuria" in gouty subjects, and M. W. Thewlis|| thinks that prolonged lying in bed may give rise to the presence of tube-casts in the urine of aged patients.

In regard to the possible occurrence of hæmaturia in cases of orthostatic albuminuria, it seems to me that, when a marked lordotic position mechanically disturbs the circulation in the left kidney, the artificial fixation (for some orthopædic reason) of the lordotic position by an orthopædic plaster-jacket—so that the lordosis remains, *even in the recumbent position*, until the plaster-jacket is removed—might aggravate the renal disturbance so as to cause hæmaturia also. This is confirmed by a case of which I have heard through the kindness of Sir H. D. Rolleston and Dr. G. C. Willcocks (of Sydney, Australia), but I think that the case has not yet been published.

* H. D. Rolleston, 'Trans. Med. Soc. Lond.,' 1902, xxv, p. 196. Similar observations by Dauchey are referred to by P. Mougene de Saint-Avid, in a Paris medical thesis (1912, p. 106) on "Les albuminuries intermittentes irrégulières," but I have not been able to find Dauchey's work.

† H. Falkenheim, "Regelmässige intermittirende Albuminurie," 'Deut. Arch. f. klin. Med.,' 1884, xxxv, p. 446.

‡ Dufour and Muller, "Sur une singulière albuminurie clinostatique," 'Bull. de la Soc. de Méd. de Paris,' 1913, xv, p. 271.

§ J. A. Amblard, 'Gaz. des. Hôp.,' 1911, lxxxiv, p. 634.

|| M. W. Thewlis, 'Geriatrics,' London, 1919, p. 52.

A CASE OF ANEURYSM OF THE DUCTUS ARTERIOSUS.*

By ROBERT HUTCHISON, M.D., F.R.C.P.

THE patient, a girl, aged 6 years, was admitted to the London Hospital on March the 4th, 1922, and died twelve days later from a sudden and profuse hæmoptysis. There was a history of measles followed by diphtheria in the preceding October, and six weeks later she suffered from "pleurisy" and had not been well since. On admission she was complaining of pain in the left side of the chest with cough and feverishness.

On examination she was a pale, thin child, crying intermittently with pain in the chest. No cyanosis or finger-clubbing.

The left side of the chest was somewhat flattened, the apex-beat was diffuse and felt in the fifth and sixth spaces just outside the nipple line. There was a soft systolic murmur at the apex and over the sternum. Examination of the lungs showed some dulness in the left infra-clavicular and suprascapular regions with diminution of the breath-sounds and some crepitation over the right apex in front. Examination of the other organs revealed nothing abnormal.

As the case progressed the dulness at the left apex became more pronounced and the apex-beat of the heart extended further to the left. The short systolic murmur disappeared. The temperature remained moderately elevated (100° – 101° F.) throughout. On March the 15th there was a small hæmoptysis, and the next day a very profuse one which resulted in almost immediate death.

Post-mortem Report by Dr. H. M. Turnbull.

Hæmoptysis; broncho-pneumonia and empyema; rupture of aneurysm of ductus arteriosus into lung.

False aneurysm (7 cm. diam.) beneath pericardium in front of and to left side of roots of great vessels. Wall of aneurysm—up to 0.4 cm. thick. Lining—composed of trabeculated organised clot and the contents of a nodule of dense laminated clot.

Aortic orifice of ductus arteriosus (0.7×0.4 cm.) opening into a true aneurysmal dilatation of aortic portion of ductus arteriosus; sharply cut free edges of true aneurysm project into false aneurysm.

Pulmonary end of ductus arteriosus closed. Great thinning of wall of pulmonary artery at bifurcation where adherent to lower anterior border of false aneurysm. This thin area (1.5×1 cm.) covered by layer of thrombus.

Aneurysm adherent to upper lobe of left lung and eroding into it to a depth of 1 cm. Organised fibrous obliterating pericarditis. Adhesions most dense over left auricle.

* The specimen from this case was shown at a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on March the 24th, 1922.

86 PURPURA FULMINANS FOLLOWING MEASLES.

Hypertrophy of heart, greatest on right. Compression of pulmonary stem and of ascending aorta and arch. Dilatation of ascending aorta (4.3 cm. circumference) and of descending thoracic aorta (2.8 cm. circumference).

Lungs: Left: Upper lobe—oedema and hæmorrhage consolidating upper and anterior fourth, around the perforation of the aneurysm. Emphysema of rest of left lung, except for small patch of collapse at lower border. Right: At anterior border of middle lobe a small area of chronic inspissated purulent pneumonia. Small empyema, partly inspissated, continuous with this, lying between anterior border of right upper and middle lobes and chest-wall (size 4.5 × 3 cm.). Obliterating fibrous pleural adhesions flecked with inspissated pus.

Blood in bronchi and trachea.

Stomach: Mucous catarrh. Blood-clot 2 oz.

Spleen: Red, chronic septic spleen.

Liver: Severe parenchymatous degeneration.

Kidneys: Ditto.

Congenital abnormality (double pelvis and double ureter uniting immediately above bladder-wall) on right side.

REMARKS.

The case is a good example of aneurysmal dilatation of a persistent ductus arteriosus of which several have been described.⁽¹⁾ The fact that the pulmonary end of the ductus was closed no doubt accounted for the absence of the characteristic murmur. It is unfortunate that a radiograph of the chest in this case was a failure as otherwise it might have revealed what is diagnostic of the condition—a pulsating projection like a cap on the top of the heart shadow. Whether the development of the aneurysm was caused by inflammatory disease of the wall of the ductus supervening upon the infection of the lungs I am unable to say.

REFERENCE.

(1) 'Pfaundler and Schlossmann's Diseases of Children' (translation by Shaw and La F  tra), iii, p. 481.

PURPURA FULMINANS FOLLOWING MEASLES.*

By E. H. KELLY, M.B., D.P.H., B.Sc.,

Assistant Medical Officer, Grove Fever Hospital, London.

ALTHOUGH fifty cases of purpura hæmorrhagica and purpura fulminans have been reported after scarlet fever during the last twenty years (McConnell and Weaver), only a few cases have been described following measles. Two of Elliott's collection of fifty-six cases (including cases of purpura hæmorrhagica) and one of Little's cases followed an attack of measles.

It is of local interest that four previous cases of purpura fulminans

* The case was reported at the Section for the Study of Disease in Children of the Royal Society of Medicine on April the 28th, 1922.

have been reported from this hospital within the last twenty years, three after scarlet fever by Biss, Rolleston and McCririck, and McCririck and one after diphtheria by Gunson. The fifth case, the subject of the present note, was a male infant, aged $1\frac{5}{12}$ years, who was admitted to the Grove Fever Hospital, certified measles, broncho-pneumonia and cancrum oris. On admission he showed a fading macular erythema on trunk and limbs, conjunctivitis, coryza. The upper lip showed marked induration and swelling extending into the inner half of the left cheek. Both lips were fissured and covered with crusts. The buccal mucous membrane and the fauces were injected, but clean. The temperature was 102°F ., pulse 124, and respirations 56. Moist râles with coarse rhonchi were heard at both bases of the lungs. The other systems showed nothing abnormal. 30 c.c. of antistreptococcal (polyvalent) serum were injected into the abdomen.

The child's condition improved daily, and on the fourth day after admission the temperature was normal and the swelling of the lip and cheek had subsided. On the twelfth day he developed his serum rash—a blotchy erythema over trunk and limbs. This faded the following day. On the fifteenth day his temperature rose to 103°F ., his pulse was rapid and small, and his respirations 50. He vomited several times that day and complained of abdominal pain. The examination of the abdomen showed nothing abnormal. He remained very ill the following day, and in the early morning of the next day (seventeenth day after admission) he developed small petechiæ over the trunk and limbs and a symmetrical dark purpuric area shaped like a butterfly's wings, occupying the cheeks and nose. The temperature was 102°F ., pulse rapid, and respirations shallow. The child died in the afternoon of that day, seventeen hours after the first appearance of the purpura.

The child had been healthy previous to this attack of measles. The family history was not of interest.

Permission was not given for a post-mortem examination and a blood-count was not made before death.

Henoch, in 1886, gave the name of purpura fulminans to a condition characterised by rapid development, great prostration, often resulting in death within twenty-four hours, and showing hæmorrhages limited to the skin, but complete absence of hæmorrhages from the mucous membranes, and absence of hæmorrhages in the organs after death, under the name "purpura fulminans."

The ætiology is still unsettled. Elliott collected reports of fifty-six cases. These included also cases of purpura hæmorrhagica. Of these eleven followed scarlet fever and two followed measles. McCririck, in 1912, in discussing his case, stated that of sixty-four cases of purpura

fulminans published up to date, seventeen had followed scarlet fever, occurring usually in the second, third or fourth week of the disease.

H. D. Rolleston and Molony describe eleven cases of purpura developing as a terminal phase in fatal cases of epidemic diarrhoea in children under one year. In one case *B. enteritidis sporogenes* was isolated in pure culture from the heart's blood.



Hanot and Luzet obtained the meningococcus in pure culture in exudation on the meninges in a case of cerebrospinal meningitis with purpura, also in the liver, spleen, and uterus. The foetus showed hæmorrhagic patches on the serous membranes with streptococci in the liver and heart.

Netter and Mozer found purpura in about 30 per cent. of their cases of cerebrospinal meningitis, and Herrick thinks that rapidly fatal cases of purpura are secondary to meningococcal infection. Graham Little describes eleven cases (one following measles) associated with suprarenal hæmorrhages. He pointed out that the medullary portion of the gland was most affected, giving the appearance of hæmorrhagic infarcts. He

suggests this as an explanation of the sudden prostration and death in previously healthy children.

It has been suggested that the purpura and severe general disturbance in the case reported were manifestations of serum sickness following the injection of horse-serum. As cases of purpura fulminans were described before the use of horse-serum and as a large proportion of the cases have followed scarlet fever in which no serum was used, the injection of serum was probably not the cause.

I have to thank Dr. J. H. Whitaker, Medical Superintendent of the Grove Hospital, for permission to publish this case; Dr. J. D. Rolleston for much help with regard to the literature on the subject; and Dr. T. Brushfield, of the Fountain Mental Hospital, who took the photograph shown.

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Royal Society of Medicine.

CLINICAL SECTION.

October the 14th, 1921.

Case of Renal Dwarfism with Optic Atrophy.—Dr. A. FEILING and Dr. W. L. HOLYOAK showed a boy, aged 12½ years, who had come under observation for defective vision in the left eye. He was said to have had whooping-cough at the age of 4, after which the sight became worse and the legs became crooked. Present condition: Height 43½ in., weight 3 st. 13 lb. 8 oz. Mental state quite normal. Left eye-vision reduced to perception of large moving objects only; primary optic atrophy in left eye. Right optic disc pale, but vision $\frac{6}{6}$ and $\frac{6}{6}$ with correction. Visual field in right eye full.

Very marked degree of genu valgum in both legs. Urine: The amount had varied from 26 to 40 oz. in twenty-four hours. Specific gravity 1012, acid, clear; constant albuminuria. Amount of albumin 0.25 per cent. or 1.1 gr. per ounce. A few hyaline and granular casts found. No definite cardiovascular changes; blood-pressure 95 mm. Hg. systolic and 70 diastolic. Wassermann reaction in the blood negative. Cerebro-spinal fluid: Wassermann reaction negative; cell count 2 to 3 per cubic millimetre; no globulin. On X-ray examination the sella turcica was small and ill-developed, but otherwise no definite abnormality could be detected.

November the 11th, 1921.

Case of Cleido-cranio Dysostosis.—Mr. C. E. SHATTOCK showed a girl, aged 6 years and 8 months. No history of the condition being hereditary. Right shoulder held lower than left. Shoulders could be brought together anteriorly. Right clavicle showed an absence of bone in its middle third, where it was represented by a fibrous band. Left clavicle shorter than normal, appeared to be bony, and was loosely articulated with sternum and acromion. Toes stunted. Nails of fingers and toes short. X-ray examination: Skull: Thinning of bone in region of bregma, stunted development of nasal bones, absence of frontal sinuses. Clavicles: Imperfect ossification, more marked in right clavicle, where there was absence of bone in middle third. Toes: Absence of epiphysial centres in phalanges; abnormal breadth of phalanges of hallux; poor development of ungual tuberosities. Fingers: Irregular epiphysial lines in some of the intermediate and terminal phalanges; proximal and distal epiphysial centres in second and fifth metacarpal; poor development of ungual tuberosities.

January the 13th, 1922.

Case of Plexiform Neuroma.—Mr. PHILIP TURNER showed a girl, aged 14 years, with a diffuse tumour involving the left external ear, parotid region of the face and occipital region of the scalp. The mother said that the swelling of the external ear had been present since birth, but that during the six months before her admission to hospital in May, 1921, it had increased in size, so that it completely obstructed the external auditory meatus, rendering the child deaf on that side unless she retracted and raised the pinna. Extension of the growth to the parotid and occipital regions had been noted for the last eighteen months. The tumour was soft and compressible, but did not fluctuate; it appeared to have caused absorption or displacement of the cartilage of the external ear. There was a well-marked constriction between the swelling of the ear and that in the occipital region, which extended upwards to the vertex of the skull, but the tumour was continuous from the left parotid region to the occipital region beyond the mid-line, while its vertical extent was from the upper half of the neck to the vertex. Its outline was ill-defined, but several hard nodules could be felt in the mastoid region and near the external occipital protuberance. Recently there had been a remarkable growth of hair in front of the ear. There was but little pain, though the hard nodules were tender when pressed. The nerves involved appeared to be the ascending superficial branches of the cervical plexus. In May, 1921, portions of the tumour were removed from behind the ear, in the hope that the obstruction of the external audi-

tory meatus might be removed. This was to a certain extent accomplished, as she was now able to hear with the left ear. Though the extent of the tumour had increased but slightly, new tissue appeared to have formed in the region of the old operation. Histological examination showed that the growth was a plexiform neuroma.

Hodgkin's Disease with Long History and Absence of Constitutional Symptoms.—Mr. W. H. OGILVIE.—The patient was a boy, aged 13 years. In July, 1918, his mother first noticed small swellings in the left side of the neck, which were diagnosed as tuberculous glands, and treated by local and constitutional measures for four months. In December, 1918, a chain of glands was removed from beneath the left sterno-mastoid. Section of one of the glands showed typical lymphadenoma. Shortly after his discharge the swellings reappeared, and he was treated from January, 1919, to February, 1920, by X rays. As the swellings continued to increase, the treatment was discontinued. In November, 1920, as the swelling, after two years, was still limited to the left side of the neck and as his general health was excellent, he was readmitted to hospital for further surgical treatment, and glands were removed on November the 29th and January the 23rd, 1921. The swellings reappeared, and he was again given X-ray treatment from February to April, 1921. Present condition: Operation scars on left side of neck. Group of enlarged glands in submaxillary region and over masseter, also some obstructive lymphatic œdema of left side of face. On the right side a mass of glands extended from the clavicle to the mastoid process, mostly behind the sterno-mastoid. There was also a mass in the left axilla. The right axilla and groins were free. Rounded lower border of liver could be felt $1\frac{1}{2}$ in. below costal margin, and spleen also descended $\frac{1}{2}$ in. below tenth costal cartilage. Chief complaint was pain in left axilla. Temperature normal during three weeks' observation. Pulse varied from 60 to 100. Blood: red cells, 4,890,000; white cells, 11,000; hæmoglobin, 75 per cent.; colour index 0.7. Blood-pressure 110 mm. Hg.; nervous system and urine normal. Mr. Ogilvie now proposed to treat him with radium.

February the 10th, 1922.

Syphilitic Ulcer of the Tongue in a Child.—Mr. W. E. TANNER.—The patient was a boy, aged 4 years, who, on December the 13th, 1921, complained of pain in the tongue. The mother found a deep fissured ulcer at the tip and thought that he had bitten his tongue. There were two younger children, both stated to be healthy. The last child was born two weeks ago; one miscarriage. Last summer the boy had an affection of the eyes for which he attended hospital every day for two months. The father had a positive Wassermann reaction, but the mother refused to have a blood-test.

The parents had no evidence of active syphilis at the present time. The child was well grown and of healthy appearance, with no sign of congenital syphilis except that the head was large and square. On January the 13th there was a large ulcer, which had destroyed the tip of the tongue, spreading on to the frænum. The edges of the ulcer were sharply defined and the base was covered with a slough. The submaxillary glands on both sides of the neck were enlarged.

Decayed teeth had been extracted. There was no sign of secondary syphilis. The Wassermann reaction was positive. The appearance of the ulcer suggested a gumma; the glands did not appear to be so enlarged and

hard as with a primary sore. On January the 23rd an injection of 0.18 cg. of sulfarsenol was given intramuscularly into the buttock, and mercury and iodide were given by the mouth. Within a week the ulcer was quite clean, with healthy granulations and commencing epithelialisation. The glands were small but shotty. Three injections of sulfarsenol had now been given at intervals of a week. A piece of the ulcer removed for microscopical examination had been reported to be gummatous by three pathologists.

SECTION OF DERMATOLOGY.

December the 15th, 1921.

Case of Multiple Nævi.—Dr. A. M. H. GRAY showed an infant, aged 5 weeks, which had been born without any skin lesion. On the second day of life a little spot came out on the left eyebrow, and since then lesions had been coming out every day, and were still appearing. Almost every part of the body was affected. They were now very numerous, some 50 or 60 in number. Some of them, especially the early ones, appeared to have the more or less typical characters of ordinary stellate nævi, whereas others were more like simple angiomas.

Nævo-xantho-endothelioma (?) with Epidermolysis Bullosa.—Dr. G. W. SEQUEIRA showed a female infant, aged 17 months, with xanthoma-like lesions on hands and feet. They were first observed soon after birth and appeared in clusters on the nose and other parts. The mother stated that many of the clusters had disappeared. The lesions were now confined to the hands and feet. The infant had also suffered from epidermolysis bullosa since birth, any damage to the skin from trauma, such as blows, friction or pressure, being followed by characteristic bullæ. The child's mother had also suffered from a combination of the two diseases and still showed some nodules, and blisters formed after damage to the skin, although not so readily as they did when she was younger. The child's grandmother stated that she had had the same yellowish nodules when a child, and used to be subject to blisters when she injured her skin. Her father had also suffered in the same way after injuries, as had also her sister and her sister's two sons. One of these boys had died from diabetes at the age of 12. The nails of one or two of the fingers showed desquamative changes, probably the result of blebs formed beneath and around the nail, leading to changes in the nail plate and thus interfering with its growth.

January the 19th, 1922.

Case of Lichen Obtusus Corneus.—Dr. W. KNOWSLEY SIBLEY showed a girl, aged 11 years, who had had for two years a papular eruption over the body. The mother said that the lesions commenced on the legs and had gradually spread over the body. At present the shoulders were extensively affected; she had lesions all down the arms, a few lesions on the front of the chest, and the legs were much involved. She said that they did not itch, but she had picked off the heads of a large number of the papules, and the mother said that the girl scratched herself during sleep. Vesicles had not been seen. She had not been given any treatment internally, but she

had had three small applications of X rays to the shoulders, and there was a considerable subsidence of the lesions in these regions. She had typical lichen planus papules over the elbows and shoulders, and many of the lesions above described were horny in character, especially those on the anterior aspect of the legs and shoulders. Dr. Sibley suggested that they were allied to those found in lichen obtusus corneus. Some of the lesions were distinctly annular, with recent small lichen planus papules occurring in the periphery of the lesions. A few of the lesions, especially about the elbows, were in a linear formation.

Parakeratosis Variegata.—Dr. H. W. BARBER showed a boy, aged 13 years, who had come to him a few weeks ago with an eruption which he had diagnosed as belonging to the parapsoriasis or parakeratosis variegata group. The eruption had first appeared at the end of last September, first on the arms, then on the shoulders and legs. There were no subjective symptoms and very little scaliness. On the shoulders particularly there were telangiectatic spots. He proposed to treat the case with ultra-violet light.

February the 6th, 1922.

Case of Unilateral Morphæo-sclerodermia Faciei.—Dr. GEORGE PERNET showed a boy, aged 11 years, who had attended his out-patient department four months previously with a patch on the centre of the right cheek about the size of a florin, which, when first noticed two months before then, was about the size of a sixpence. There was also a certain amount of longitudinal morphæa occupying the lower right eyelid. The condition was improving under zinc ionisation.

Psoriasis in an Infant.—Dr. HALDIN DAVIS showed an infant, aged 7 months. When 4 months old a scaly eruption developed; this gradually spread so that now it was almost universal. There were a few unattacked areas on the chin, hands and feet. The diagnosis was psoriasis in spite of the patient's age, though it had now become almost a case of dermatitis exfoliativa. A point in favour of the diagnosis was that the mother had had psoriasis and that the eruption when the child was first seen was circinate.

Lichenoid Linear Nævus.—Dr. E. G. GRAHAM LITTLE showed a male infant, aged 18 months, who had had the condition since very shortly after birth. At present there were two broad streaks consisting of raised red discrete lesions resembling lichen planus of a somewhat hypertrophic type, extending side by side and at a distance of half an inch or so from the buttock to the heel on the left side.

Case of Grouped Comedones.—Dr. GRAHAM LITTLE also showed a female child, aged 1 year, with a very extensive eruption of so-called grouped comedones, extending from nape to waist over the back and from neck to navel in front. The mother had rubbed the child with olive oil in which she had dissolved a block of camphor.

SECTION OF LARYNGOLOGY.

April the 1st, 1921.

Case of Lateral Proboscis.—Mr. PHILIP FRANKLIN showed a male infant with absence of the nasal fossa and accessory sinuses on the right

side and a nasal proboscis or tube resembling a penis in form situated above and internal to the right eye. The central canal of the appendage could be traced to the depth of the orbital cavity. Movement of the appendage was quite apparent, and this suggested that the facio-nasal muscles were developed. The free extremity of the appendage, except for the perforation, showed the septum of the nasal vestibule which at times caused occlusion of the anterior nares. It was obvious that the appendage must be removed, and Prof. Keith had suggested that the eye should be removed at the same time in order to avoid the formation of a fistula and also subsequent lacrymation. A fistula was particularly to be avoided, since it might lead to meningeal infection. The appendage extended to the region of the cribriform plate and olfactory lobe.

Scarlatinal Scarring of the Pharynx.—Dr. DAN McKENZIE showed a middle-aged woman who, having discovered a "lump" in her throat a few weeks ago, had come to hospital for advice. On examination it was seen that the lump was probably the uvula shifted over to the right side of the palate by cicatricial contraction. The scarring with its fine edges, thin substance and smooth surface was unlike an old tertiary lesion, and the Wassermann reaction was negative. The patient had had a severe attack of scarlet fever at the age of five years and the present condition was most probably due to scarlatinal angina.

December the 2nd, 1921.

Repair of Nasal Deformity caused by Syphilis.—Dr. DOUGLAS GUTHRIE showed photographs of a girl, aged 18 years, who, between the ages of 9 and 16, had suffered from inherited syphilis, which had destroyed the cartilaginous part of the septum and the columella and caused an extreme degree of saddle-nose deformity. After three months of anti-syphilitic treatment the Wassermann reaction became negative and operation was undertaken. The nasal bridge was reconstructed by a costal cartilage graft, and a columella was fashioned from an upper flap from the skin of the vestibule and two lower flaps from the upper lip. Dr. Guthrie had operated upon seven such cases, two of them due to syphilis, five caused by injury. The traumatic cases were naturally the more favourable, but in all the results were good.

SECTION OF ODONTOLOGY.

January the 23rd, 1922.

Mandibular Sarcoma in an Infant.—Mr. STANLEY MUMMERY.—The patient was a baby, aged 9 months, the daughter of a medical man. In February, 1921, a swelling developed on the left side of the mouth, and the local doctor who examined it, finding it was cystic in character, inserted a trocar and cannula, and drew off a quantity of serum. The swelling very soon re-formed, and the child was brought to Mr. Mummery on March the 18th, when the following condition was found: There was a large swelling in the left cheek, pressing up the lower eyelid, and filling the left side of the mouth nearly to the middle line. The swelling was tense and fluctuating, and appeared to spring from the posterior portion of the lower

left mandible. No œdema was present. A hard body resembling a tooth could be felt on the outer side of the tumour next the cheek. A skiagram showed the swelling to be cystic with a definite limiting wall; the secondary temporary molar was embedded in its outer wall and was raised half an inch above the mandible. A shadow which appeared to be the germ of the first permanent molar could just be distinguished below the swelling. On the strength of the clinical and X-ray evidence Mr. Mummery thought the growth was possibly a dentigerous cyst, and decided to operate next day. At the operation the mucous membrane was incised, disclosing a purple cyst wall underneath. This was gradually dissected out until the posterior part was reached, which was found to be firmly adherent. The tumour was then opened, and a quantity of blood-stained mucilaginous material and serum evacuated. Examination of portion of the cyst wall by Mr. Howard Mummery showed epithelial strands and traces of an epithelial lining in places, thus bearing out the clinical resemblance to a dentigerous cyst. The mucilaginous material examined by Dr. Eastes proved to be sarcoma of the small round-celled variety. Sir Arbuthnot Lane then decided to try radium, and a small tube was inserted into the wound for six hours. A week later the tumour had practically disappeared; beyond a slight fullness in the sulcus perceptible to the finger there was no sign of any swelling whatever. No further change took place for several weeks, but on June the 14th, nearly three months after the operation, the child was brought up with a recurrence of the swelling. The tumour was then of the same size and in the same position as formerly. On June the 16th a second operation was performed by Sir Arbuthnot Lane of a rather more extensive nature than the first. The contents of the growth were less fluid than before, and resembled transparent jelly. The rough exposed bone of the mandible could be felt at the bottom of the wound. Radium was again employed, and the tumour again shrank almost to vanishing point. On October the 22nd Mr. Mummery saw the patient again, as the lower temporary canine on that side had become loose and was giving trouble. The tumour had reappeared, but was of nothing like its former size. Mr. Mummery removed the canine, which was embedded in sarcomatous tissue, and inserted a small radium tube into the socket for a few hours. The child lived until January, 1922, by which time the sarcoma had made rapid progress, entirely filling the mouth and pressing on the fauces. Towards the end feeding became impossible, and partial asphyxia hastened the inevitably fatal termination.

SECTION OF OPHTHALMOLOGY.

December the 9th, 1921.

Lobulated White Mass at Macula.—MR. C. J. LONGWORTH BLAIR.—The patient was a boy, aged 11 years. Vision in the right eye had been defective for about the last two and a half years. He was stated to have had laryngitis, whooping-cough and croup during or about the years 1914-15, also an attack about 1914-15 of chorea. The point of special interest consisted in the appearance of the lobulated white mass at the macula.

Double Congenital Ptosis; Motais' Operation on Right Eye.—MR. R. AFFLECK GREEVES.—The patient was a male infant, aged 12 months,

with complete congenital ptosis of both eyes. Motais' operation was performed on the right eye on October the 19th, 1921. The left eye had not been dealt with.

January the 13th, 1922.

Growth on the Conjunctiva in an Infant.—Mr. P. G. DOYEN showed a female infant, aged 4 months, with swellings to the outer side of the limbus in each eye noticed since birth. Other congenital defects were a bifid tongue and three phalanges on the right thumb. In the subsequent discussion the general opinion was that the growth on the conjunctiva was a dermoid.

Osteomyelitis of the Upper Jaw in Infants.—Mr. M. S. MAYOU reported two cases. Case 1: An infant, aged 4 months, was admitted to hospital with a temperature of 100·8° F., pulse 102, respirations 28, with a sinus and swelling below and to the outer side of the right eye. Two weeks before admission the swelling, which was attributed to an insect-bite, appeared below the right eye. An incision had been made into it by the family practitioner parallel to the lower margin of the orbit and a quantity of pus evacuated. Two and a half weeks after admission the sinus was opened up and scraped. The patient remained in hospital for two months and was finally discharged with the sinus unhealed. A piece of bone was extruded from the sinus on December the 29th, 1921. Case 2 was an infant of about the same age admitted to hospital with a swelling below the right eye, the lids of which were red, oedematous and tender. The eyeball was proptosed. The child was ill, temperature 104° F. and pulse 140. Several days before admission an abscess in the hard palate had been excised by the general practitioner, but this had healed completely on admission. An incision was made parallel to the lower border of the orbit and carried down to the bone; this liberated a quantity of pus, and bare bone in the floor of the orbit could be felt. An immediate improvement took place in the child's condition, the temperature falling to normal in about a week. A sinus persisted until the child was discharged from hospital six weeks later, but had now healed. Mr. Mayou had seen the first case of this kind in 1901 in an infant of much the same age, when practically the whole of the upper jaw came away piecemeal as a sequestrum. The source of infection was difficult to understand as these children had no teeth. As a rule the nose could also be excluded, as there were practically no sinuses. Mr. Mayou thought that the infection was probably metastatic as in the cases of the long bones. The Wassermann reaction was negative in the first case, and in the second case the general practitioner said that there was no suspicion of syphilis either in the parents or in the child.

SECTION OF SURGERY: SUB-SECTION OF ORTHOPÆDICS.

April the 5th, 1921.

Case of Bilateral Radio-ulnar Synostosis associated with Bilateral Congenital Dislocation of Hips.—Mr. E. LAMING EVANS.—The patient was a girl, aged 5 years, who was first seen in May, 1918, when the mother stated that the child was unable to roll the forearms. There were three sisters and one brother, and no history of deformity in the family.

On examination synostoses of the upper end of the radius and ulna were found on both sides; the forearms were in a position of pronation. A bilateral congenital dislocation of the hips was also present, and was reduced in September, 1918. Mr. Laming Evans had not attempted to treat the radio-ulnar synostosis for the following reasons: (1) That the functional disability was slight and could largely be compensated by external rotation of the shoulder; (2) that the attempts at nearthrosis had resulted in the cases he had seen in failure.

Case of Multiple Cartilaginous Exostoses associated with Congenital Dislocation of the Hip.—MR. LAMING EVANS also showed a girl, aged 9 years, first seen at the age of 2 years 9 months in October, 1914, when the left leg was observed to be shorter than the right. Examination showed dislocation of the left femur on to the dorsum ilii. Nothing abnormal detected either on femoral head or at site of acetabulum; thickened mass felt on anterior surface of left femur below level of great trochanter, also small irregular mass on crest of right ilium. There was no history of deformity in either father's or mother's family.

The case was not seen again until March, 1921, when it had developed into a typical example of multiple cartilaginous exostoses. Exostoses could be felt on the left femur, at the insertion of the adductor magnus, and at the upper end on the anterior surface just below the level of the great trochanter, on the left tibia at the insertion of the sartorius and at the lower end of the left fibula. The X-ray appearance of the left acetabulum suggested a cartilaginous exostosis arising from the Y-shaped cartilage, but this could not be confirmed by palpation. Exostoses were also present on the right iliac crest, right femur and right fibula, lower end of the right radius and vertebral borders of scapulæ. Mr. Evans considered that this was a case of congenital dislocation of the hip, in which the cause was a shallowing of the acetabular floor caused by a cartilaginous exostosis from the Y-shaped cartilage.

Société de Pédiatrie, Paris.

January the 17th, 1922.

Permanent Slow Pulse associated with Patent Interventricular Septum.—MM. BARBIER, LESNÉ and MOUQUIER showed a boy, aged 15 years, who, apart from measles at two, had been in good health until six months previously, when he began to be short of breath on going upstairs or running. No other symptoms such as cyanosis or attacks of suffocation were present. On examination systolic pulsation was visible in the fourth and fifth left intercostal spaces, and a thrill was felt in the mesocardiac region. Along the margin of the sternum a systolic murmur was heard, most distinct at the inner end of the third intercostal space. The pulse was 44 a minute. The electro-cardiogram showed a complete auriculo-ventricular dissociation. Production of the oculo-cardiac reflex gave rise to a syncopal attack. The congenital nature of the affection appeared to be established by the presence of other developmental errors, such as costal nodules, high arched palate, asymmetrical skull, small testes, infantile voice and absence

of axillary and pubic hair. The Wassermann reaction was negative, and there was no history of syphilis or any other infection to which the bradycardia could be attributed.

Peri-orbital Nocturnal Neuralgia cured by Peptone.—Mme. NAGEOTTE-WILBOUCHEWITCH showed a girl, aged 8 years, who had been subject to severe attacks of peri-orbital neuralgia, which woke her up regularly at 4 a.m. The condition, which had followed an attack of influenzal broncho-pneumonia, was cured by the administration of peptone for two months in doses of 0.50 grm. twice daily before meals.

Painful Polymorphous Dermatitis with Predominance of Bullæ.—MM. G. L. HALLEZ and ZUBER showed a female infant, aged 5 months, in whom the polymorphous character of the lesions, the eosinophilia, absence of fever, intense pruritus and pain, and the subacute, not to say chronic, course suggested the diagnosis of Brocq's painful polymorphous dermatitis. The speakers stated that this form of dermatitis, which was less uncommon in childhood than was formerly supposed, might in exceptional instances develop shortly after birth, as in cases reported by Bowen, J. Hallé and Brocq. These authors stated that in half the cases under fifteen years of age pruritus was absent.

Loss of Water by the Lung in the Healthy Infant and in the Infant suffering from Cholera infantilis and Ordinary Diarrhœa.—MM. A. B. MARFAN and H. DORLENCOURT, as the result of their investigations, found that in normal children the average loss of water by the lung in ten minutes was 0.0318 grm. per kilo of body-weight, while in cholera infantilis the loss of water was increased by more than a third, and in ordinary diarrhœa, without any toxic or infective symptoms, the loss diminished by more than a half.

Insufficiency of the Soft Palate accompanied by several other Malformations.—MM. APERT and BIGOT showed a boy, aged $8\frac{1}{2}$ years, whose pronunciation suggested that he had a perforation of the palate. On examination, however, no such lesion was found, but the palate was very short and the uvula very small. On the other hand, the distance between the posterior border of the soft palate and the posterior wall of the pharynx was much increased, suggesting that the soft palate was too small to carry out its function of obturator to the pharynx. Deglutition took place normally at present, but up to the age of three years regurgitation through the nose was frequent.

This form of malformation of the soft palate was described in 1892 by Lermoyez, who collected twelve cases, including one of his own. Since then Castex and Egger in France had published three cases, and Gutzmann in Germany twenty cases. In all these cases the palatal condition was usually the only malformation present. Gutzmann, however, quoted a case of Gluck's, in which there was a flattening of the side of the head and thorax with a congenital cicatricial depression at the right buccal commissure. In the present case the palatal insufficiency was associated with a number of other malformations, namely, extreme brachycephaly, camptodactyly of the left ring finger and the second toe on both sides, absence of the xiphoid cartilage and an undescended left testis. The intelligence was normal. The child had been born at full term, and delivery had been normal. The parents were elderly, the father being fifty-three and the mother forty-two when the child was born. The Wassermann reaction was negative. There

was no similar case in the family as in some of the recorded cases. Some improvement was effected by making the child blow out candles, blow soap-bubbles, and training him to speak correctly.

Intercostal Zoster following Tuberculous Pleurisy with Effusion.—M. G. SCHREIBER reported two cases in children—a girl, aged 14 years, and a boy, aged 15 years—who developed intercostal zoster in convalescence from tuberculous pleurisy with effusion, but the zoster was on the same side as the effusion in one case and on the opposite side in the other. This seemed to indicate that if the tubercle bacillus was responsible for the occurrence of the eruption, as seemed probable, zoster was not a local complication, but a manifestation of a generalised tuberculous infection. Zoster might sometimes be the first sign of tuberculous infection, and therefore appear before the pleurisy.

Abstracts from Current Literature.

Acute Infectious Diseases.

Diphtheria in the newborn ('*Bull. Acad. de Méd.*, 1921, LXXXVI, p. 191).—S. Brindeau reports an epidemic of nine cases of diphtheria among newborn children in a lying-in hospital. All the infants were healthy and born at full term. All presented the same clinical symptom—coryza. All but one died in a few days in spite of diphtheria antitoxin, which was used in five cases. Preventive injections of antitoxin were given, no case of serum disease developed, and the outbreak, in which the newborn were exclusively attacked, was brought to an end without it being necessary to close the service.

J. D. ROLLESTON.

Faucial diphtheria in the first months of life ('*Le Nourrisson*, 1922, x, p. 44).—G. Blechmann and M. Chevalley, after quoting Rolleston's statistics (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1917, xiv, p. 64), report a fatal case of faucial and nasal diphtheria in a female infant, aged 1 month, who ten days before the onset of diphtheria had shown a negative Schick reaction. They conclude that in the infant too much confidence should not be placed in passive immunity of maternal origin, and that the ordinary methods of prophylaxis should be rigorously carried out in crèches and nurseries, whether the Schick reaction be performed or not.

J. D. ROLLESTON.

Diphtheria of the glans penis ('*Arch. f. Kinderheilk.*, 1921, LXX, p. 112).—P. Bode reports a case of diphtheria of the glans penis in a boy, aged 6 years, associated with faucial diphtheria. The disease ran a favourable course without any complications. There were two possible modes of infection of the penis in this case, viz. either by direct transfer of diphtheria bacilli by the hands to the penis, or by the urine. Conradi and Bierast found diphtheria bacilli in the urine in 54 out of 155 cases of diphtheria (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1912, ix, p. 508), and Beyer obtained further results in all the 19 cases of diphtheria which he examined.

J. D. ROLLESTON.

Diphtheria with bilateral orchitis during the serum manifestations (*Arch. de méd. des enf.*, 1921, xxiv, p. 744).—**G. Blechmann** and **J. Stiassnie** report the case of a boy, aged 6½ years, with a severe attack of diphtheria treated by large doses of antitoxin, who developed an extremely painful bilateral orchio-epididymitis at the time of the serum manifestations. With the fall of the temperature and subsidence of the other symptoms of the serum disease the scrotum diminished in size and the pain subsided. The writers regard the orchio-epididymitis as a hitherto undescribed localisation of the symptoms caused by serum. **J. D. ROLLESTON.**

Case of primary anal diphtheria (*La Pediatria*, 1921, xxix, p. 318).—**M. Mallardi** reports the case of a boy, aged 22 months, suffering from pain and irritation in the genitals and perinæum. The anal orifice was red and swollen. On separating the folds there were two small fissures with grey exudation at the bottom. There was fever, constitutional disturbance, and glandular enlargement in the peri-anal region. Microscopical examination showed numerous streptococci and bacteria having the morphological characteristics of diphtheria bacilli. Recovery ensued on treatment with antidiphtheritic serum and dressings of ichthyol and hydrogen peroxide.

VINCENT DICKINSON.

Wound-diphtheria responsible for a diphtheria outbreak (*Arch. of Ped.*, 1921, xxxviii, p. 732).—**A. D. Kaiser**.—The patient was a girl, aged 16 years, admitted to a general hospital with the diagnosis of empyema. There was little relief from the operation. Repeated small hæmorrhages took place through the incision and the patient presented the picture of toxic absorption. When the dressings were changed one day a dirty grey exudate from which diphtheria bacilli were cultivated was found about the tubes. 18,000 units were injected intravenously, but death took place from cardiac failure a few days later. The necropsy revealed membranous pleurisy and pericarditis, and smears and cultures from the pleural and pericardial membranes and pericardial fluid yielded typical diphtheria bacilli. The case was responsible for three cases of diphtheria among the nursing staff, one of which was laryngeal, three in the adult ward and two in children, while cultures of the throats of thirty children who were negative on admission were positive in eight cases. **J. D. ROLLESTON.**

The heart in diphtheria (*Journ. Amer. Med. Assoc.*, 1921, lxxvii, p. 765).—**C. H. Smith** examined 242 cases of diphtheria, and found that 72 per cent. had no evidence of cardiac disturbance apart from an initial tachycardia of 135 to 172. The remaining 28 per cent. after an interval of several days showed certain vagaries of the pulse, viz. sinus arrhythmia and sino-audicular block in 65 per cent., premature contractions in 20 per cent., none of these three phenomena being accompanied by symptoms or signs of circulatory embarrassment. The remaining 15 per cent. consisted of high grade heart-block, which was very sudden in onset, and was associated with very urgent cardio-circulatory symptoms with death within 36 hours. Auricular fibrillation was not observed. **J. D. ROLLESTON.**

Diphtheria bacillus carriers; results of re-examination of apparently negative cultures (*Johns Hopkins Hosp. Bull.*, 1922, xxxiii, p. 110).—**B. C. Marshall** and **C. G. Guthrie** show that when dealing with throat cultures from diphtheria carriers the customary practice of making

single or repeated examinations within the first twenty-four hours may not yield all the information available and may lead to erroneous conclusions. Of 549 cultures which were negative on the first examination, 52, or 9·47 per cent., were positive on examination after an additional incubation of twenty-four hours. Similar results were obtained in 1912 by Knebel, who found that among 576 negative cultures from diphtheria convalescents, 55, or 9·54 per cent., were positive when examined after twenty-four hours. Thus out of a total of 1125 cases in which the cultures were negative after examination within twenty-four hours, 107, or 9·51 per cent., were positive on re-examination.

J. D. ROLLESTON.

The application of bacteriological studies to the prevention of diphtheria (*'Public Health,'* 1922, xxxv, p. 203).—F. W. Andrewes states that different strains of the bacillus vary in toxicity, one strain killing a guinea-pig in twenty-four hours, and another in four days. A freshly-isolated strain is either markedly toxic or wholly non-toxic. Strains isolated from carriers are fully toxic or wholly non-toxic. Intermediate properties are rarely met. There is a lack of evidence that non-toxic strains ever become toxic again. There is little relationship between toxicity and the severity of the attack. Intense toxicity may be found in bacilli recovered from mild cases of diphtheria. The susceptibility of the individual determines the onset and severity of the attack. If one-fiftieth of a unit of antitoxin exist in a c.c. of blood the subject is immune to the disease. 80 per cent. of infants are passively immune at birth, but this gradually disappears till at three years of age only 28 per cent. react negatively to Schick's test. After this immunity again rises till at eighteen years of age 80 per cent. are actively immune, perhaps due to sub-infection during childhood, not sufficiently severe to set up recognisable diphtheria. The percentage of immunity is far higher among the lower classes. There is no certain means of ridding the carrier of his bacilli, but disappearance often occurs after removal of enlarged tonsils and adenoids. Virulent carriers should be isolated in the country. Re-infection of one case by the other would be avoided by open-air treatment, and removal of those whose swabs had become negative to another part of the building. The wide application of the Schick test and immunisation is strongly advised, but resort to legal compulsion is not recommended.

CHRISTOPHER ROLLESTON.

The Schick test (*'Lancet,'* 1922, i, p. 312).—T. E. Dickinson used in 1200 cases Burroughs and Wellcome diluted toxin and as a control the toxin heated to 75° C. Injection was made into the forearm and was followed immediately by a raised white urticarial wheal. Inspection of the forearm was made 24 hours, 72 hours and 10 days after injection. The positive reaction is characterised by a slightly raised and infiltrated area 10–30 mm. in diameter, varying in colour from a deep pink to a dark dusty crimson. The reaction is at its height 48 to 72 hours after injection. At the end of the first week there is brown pigmentation and scaling. The latter may vary from fine desquamation to massive exfoliation. The reaction was delayed in 154, or 14·1 per cent.; 147 were delayed one day, 6 four days, and 1 five days. In 10, or 0·9 per cent., abnormal pigmentation occurred after the tenth day. Massive scaling occurred in 2 and vesiculation in 3. The largest number of positive reactions occur in the fourth year of life, which agrees with the age-incidence of these diseases and the mortality figures. The pseudo-reaction is an anaphylactic phenomenon which reaches its

maximum in 20 to 30 hours. It is of more vivid red, begins to fade before 48 hours, is more infiltrated, and only occasionally leaves a faint pigmentation. There is often a well-marked pink zone round it. It is larger than the positive reaction. The reaction due to the control is of this nature. A reaction in both arms means a pseudo-reaction, which fades equally in both arms. In a combined reaction the control arm clears up quickly while the other goes through the various stages of the positive reaction. Pseudo-reactions in 10 per cent. of the cases persist for more than a week. They are more than twice as common in those over than in those under 15 years of age, and among normal persons than those suffering from scarlet, enteric and puerperal fevers and erysipelas. The administration of anti-streptococcal serum probably inhibits the development of a positive Schick reaction. Scarlet fever predisposes slightly to diphtheria. Toxic cases gave a very low percentage of positive reactions—19 as compared with 47·38 of all scarlet fever cases. Vaccination increases by five times the frequency of pseudo-reactions. There is a high pseudo-reaction rate among enteric and erysipelas cases and a low one in puerperal fever. Infancy diminishes both the positive and pseudo-reactions. Cases treated with anti-diphtheritic serum gave a very high percentage of pseudo-reactions. Members of the same family tend to give the same positive or negative reactions, but do not agree in their pseudo-reactions.

CHRISTOPHER ROLLESTON.

Schick's reaction in infants (*Riv. di Clin. Ped.*, 1921, xix, p. 621).—**M. Flamini** investigated the Schick reaction in a foundling hospital in 145 children at the breast, 125 weaned infants aged from 1 to 3 years, and 190 nursing women. The percentage of positive reactions was 17 in infants aged 3 to 4 months, 29 in those aged 4 to 8 months, 36 in those aged 8 to 12 months, 46 from 1 to 2, and 50 from 2 to 3. The ages of the nursing women ranged from 17 to 30, most being about 20. Positive results were obtained in 60, or 32 per cent. There was no relation between the mother and child or between the nurse and the suckling as regards the presence or absence of diphtheria antitoxin, but if the suckling had antitoxin in its blood it was not inherited from the mother nor acquired from the nurse through the milk.

J. D. ROLLESTON.

The management of a diphtheria outbreak in a private school (*Journ. Amer. Med. Assoc.*, 1921, LXXVII, p. 1714).—**E. C. Fleischner** and **E. B. Shaw**, who describe the management of a diphtheria outbreak in a private school of 150 patients, draw attention to the high percentage (65 per cent.) of positive Schick reactions in boys from 8 to 18 years of age. In view of the fact that these boys came from a stratum of society in which diphtheria was not prevalent, this suggests the possibility that repeated exposures to the disease played a rôle in the development of natural immunity.

J. D. ROLLESTON.

The carrier of diphtheria bacilli from the fever hospital standpoint (*Med. Officer*, 1922, i, p. 91).—**H. R. Harries**.—Distinction has to be made between clinical diphtheria, some other pathological condition, plus saprophytic diphtheria bacilli, and the healthy "carrier." This point can now be eliminated by the application of the Schick test. A positive Schick reaction means that the patient is susceptible to the toxin of diphtheria, a negative, that he has sufficient antitoxin in his tissues to neutralise any toxin produced by diphtheria bacilli growing on his tonsils or elsewhere.

The toxin used must be active and recently diluted, a control must be used, the needle must be fine and sharp, and the test must be intradermal. No anti-diphtheritic serum must be given for at least six weeks before the administration of the test. Cases not presenting clinical signs of the disease are divided into the two following groups: Group 1—positive swab, (a) Schick positive, (b) Schick negative; Group 2—negative swab, (a) Schick positive, (b) Schick negative. Group 1 (a) is treated with antitoxin; Group 1 (b) is not. Group 2 (a) is also treated by antitoxin, but in Group 2 (b) antitoxin is not required. Three hundred and twenty cases of scarlet fever were swabbed and tested by the Schick test, with the following result: Negative swab and negative Schick 65·7 per cent.; positive swab and negative Schick 9·6 per cent.; negative swab and positive Schick 19·9 per cent.; positive swab and positive Schick 5·4 per cent. Twenty-five per cent. of these cases were therefore susceptible to diphtheria as compared with 33 per cent. in Park's series. Nurses giving a positive Schick should not nurse cases of diphtheria. Carrier cases have to be dealt with whatever the result of the Schick reaction. Virulence tests must be applied. In 161 convalescent and carrier cases 79 were virulent, 62 were avirulent, and 20 were of the Hoffmann variety and non-virulent. Patients with avirulent bacilli and giving a negative Schick reaction can be discharged at once from fever hospitals. Cases can be divided into those with (a) healthy, (b) unhealthy throat. Those in class (b) often re-infect saprophytically those in class (a). Harries discharged those in class (a) without swabbing and no "return" cases occurred. The only "return" cases occurred from class (b), which had been sedulously swabbed. No methods have yet been found which will free "carriers" from the bacilli.

CHRISTOPHER ROLLESTON.

Diphtheria control (*Med. Officer*, 1921, II, p. 275).—**B. Carey**.—In Massachusetts the death-rate from diphtheria has fallen from 43·3 per 100,000 to 15·4 during the last 20 years, but there has been very little improvement during the last 10 years of this period. The morbidity rate is still very high, varying from 283·4 per 100,000 as a maximum to 154·8 as a minimum. This failure is ascribed to (1) incomplete application of methods of proved worth, such as the Schick test and immunisation; (2) late diagnosis and late antitoxin treatment; (3) delay in receiving medical attention. Twenty-five per cent. of the undue incidence is due to recurrences in the same communities, and infection may be carried more readily by children of the pre-school age period. Several of the State institutions have been completely Schick tested followed by active immunisation. Two cities now maintain Schick clinics. Five thousand Schick tests have now been administered in Massachusetts, and only one susceptible person has developed diphtheria after a full course of toxin-antitoxin treatment. In one institution for boys in which outbreaks were frequent all the scholars were Schick tested and immunised, with the result that no further outbreaks have occurred. During an epidemic all contacts are treated by antitoxin, which produces passive immunity for 3 to 5 weeks. Later the contacts are Schick tested and the susceptibles immunised. Swabs are examined at once, and in 60 per cent. of the cases a positive diagnosis can be made. At 3- and 8-hour intervals cultures are examined and 90 per cent. can be reported. A final examination is made after 24 hours, confirming all previous diagnoses.

CHRISTOPHER ROLLESTON.

Schick test and diphtheria toxin-antitoxin immunisation (*'Public Health,'* 1922, xxxv, p. 219).—**T. E. Dickinson** states that at the Monsall Fever Hospital 12 Schick reactors among the nursing staff were treated. Three injections were given at weekly intervals. The mixture consisted of toxin just under-neutralised by antitoxin. Ten, or 83 per cent., of the nurses gave a negative Schick reaction one and a half to three months after injection. Two reacted violently, prostration, and fever to 103° F., being recorded. They had previously shown pseudo-reactions, and in such cases the dosage is reduced to 0.1 c.c., 0.2 c.c. and 0.5 c.c. for the first, second and third inoculations. The work could be carried out through the infant welfare and school medical services. One thousand Schick and control tests can be made at a cost of £20. The immunisation of 1000 persons entails an outlay of £300.

CHRISTOPHER ROLLESTON.

Schick's reaction (*'Arch. de méd. des enf.,'* 1921, xxiv, p. 624).—**J. Comby**, in a review of the literature, acknowledges the value of the recent work on this subject but points out that Schick testing and active immunisation should not be the work of the general practitioner, requiring as they do bacteriological knowledge, constant recourse to the laboratory, delicate though simple instruments, and a minute technique. Systematic employment of the reaction is easy in a hospital where experts are available. Outside a hospital the investigation of carriers, Schick-testing, etc., should be undertaken by a municipal department of hygiene.

J. D. ROLLESTON.

Scarlet fever following thumb-sucking (*'Münch. med. Woch.,'* 1921, lxxviii, p. 1679).—**R. Bloch** reports a case of surgical scarlet fever in an infant aged 18 months due to sucking its thumb, as the result of which a gaping wound had developed. The case fulfilled the conditions laid down by Hoffa in 1887, viz. development of the eruption at the site of the wound after the appearance of lymphangitis, swelling of the tonsils and sub-maxillary glands, and typical desquamation. Parents should be warned of the danger of infection in the case of every wound—even a trivial breach of surface caused by sucking—as scarlet fever is as likely to arise from this source as from drinking unboiled milk.

J. D. ROLLESTON.

Prolonged infection in scarlet fever (*'Public Health,'* 1922, xxxv, p. 151).—**W. B. Young**.—A boy, B. N—, aged 7 years, developed a scarlet fever rash on June 20, 1921. His brother, D. N—, had septic scarlet fever on March 21, was discharged from hospital on June 3, 1921, and a day or two later developed severe tonsillitis. On June 10 his tonsils were removed. He came in contact with his brother on June 10. On July 28 both brothers went to the seaside and were joined by their brother, O. N—, who travelled down with the F— family, consisting of a lady and two boys, on July 29. On August 9, eleven days after their contact with B. N— and D. N—, I. Q— and O. N— developed mild scarlet fever. Another of the F— family, N. F—, and D. N—'s mother developed scarlet fever. On August 27 Mr. N— returned home and was joined soon after by D. N—, who on September 17 journeyed with him to see friends. Mr. N— returned on September 19 feeling seedy, with a sore throat. No rash was detected. On September 20 D— was sent home, as cases of scarlet fever had occurred in the relations' home. D— was sent to a fever hospital and was found to have a thin mucoid nasal discharge. A Mrs. M—, living in another quarter of the town, developed scarlet fever. She had been lodging with a Mrs. A—,

who had been a servant in the N—s' house and who had been visited by D. N— on September 10. Two or three days later Mrs. A—s' child developed what was termed "German measles" and was nursed by Mrs. M—. The boy D. N— infected nine persons and his infectivity lasted over 26 weeks.

CHRISTOPHER ROLLESTON.

The tongue in scarlet fever ('*Journ. de Méd. de Paris*,' 1921, XL, p. 294).—**N. Cojan**.—Four distinct stages may be seen, and their recognition is of great value when the eruption is scanty or lacking. (1) The tongue is elongated, bright red at the point and edges, while the dorsum is covered with thick, white fur. This lasts two to four days. (2) The fur lessens from before back in the form of a V. (3) Towards the seventh or eighth day the whole tongue is raw, red or scarlet—the raspberry tongue. The papillæ show prominently. (4) The tongue ceases to be pointed, loses the scarlet colour and has a varnished appearance, becoming normal about the fifteenth day.

J. PORTER PARKINSON.

Miliaria in scarlet fever ('*Thèses de Paris*,' 1920–1921, No. 167).—**R. Barthe** states that miliaria in scarlet fever is rare below the age of three years, and is infrequent in the adult except in the puerperal woman. Its presence at the onset of scarlet fever may be regarded as an indication of an intense rash which will take a long time to disappear. Owing to its frequency at the onset of scarlet fever in children it possesses some diagnostic value, and in the presence of a doubtful eruption should be regarded as in favour of scarlet fever.

J. D. ROLLESTON.

Orchitis in scarlet fever ('*Il Policlinico*,' 1922, Sez. Prat., XXIX, p. 155).—**Medi**, who reports a case of suppurative orchitis in a child aged 2½ years, states that only three previous cases of genital complications in scarlet fever have been recorded, viz. one by Henoch in which inflammation of the epididymis and tunica vaginalis occurred on the nineteenth day of disease, a similar case described by Horteloup, and a third case described by Aucuña of a boy, aged 9 years, who developed slight bilateral orchitis with inflammation of the tunica vaginalis on the eighth day of disease. Unlike Medi's cases none of these ended in suppuration.

J. D. ROLLESTON.

Peritonitis as a complication of scarlet fever ('*Amer. Journ. Dis. Child.*,' 1921, XXII, p. 307).—**E. C. Dunham** has collected ten cases of peritonitis complicating scarlet fever from the literature of 1900–1919, including a personal case in a girl, aged 5 years, cured by operation. The diagnosis in four cases was confirmed by operation or by the necropsy. A streptococcus was grown from the pus in two cases. Blood cultures were not reported in any of the cases. The peritoneum is probably infected by the blood-stream in these cases.

J. D. ROLLESTON.

Purpura fulminans during convalescence from scarlet fever ('*Journ. Amer. Med. Assoc.*,' 1922, LXXVIII, p. 165).—**G. McConnell** and **H. L. Weaver** state that purpura fulminans is a rare condition, but that a relatively large number have followed scarlet fever, as is shown by the fact that J. D. Rolleston and T. McCririck in 1910 collected 16 instances of the kind (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1910, vii, p. 58).

Since then McConnell and Weaver have collected 7 more cases, including one of their own in a girl, aged 6 years, whose history was as follows: On the fifteenth day after the onset of scarlet fever, and on the seventh or eighth day of normal temperature, the temperature rose to 104° F. and the left foot became discoloured. Ecchymoses appeared on the body in the course of 48 hours, the urine and stools became bloody, and on the fourth day after the appearance of the first ecchymosis death took place. In addition to the skin ecchymoses the autopsy revealed hæmorrhages in the bladder, intestine and brain. Microscopical examination showed that the discoloration was not due to gangrene, but to intestinal hæmorrhage following infective thrombosis.

J. D. ROLLESTON.

Relapses in scarlet fever (*'Arch. de méd. des enf.'* 1921, xxiv, p. 471).

—V. Hutinel and M. L. Nadal attach much importance in the causation of relapses in scarlet fever to the co-existence in the early stage of the disease of some other more or less severe infection, the influence of this association being to modify the process of immunisation. They record 10 cases of relapse in cases of scarlet fever associated with some other infection, viz. lobar pneumonia in 3 cases, acute articular rheumatism in 1 and a surgical infection in 6.

J. D. ROLLESTON.

Diagnosis of scarlet fever (*'Deutsche med. Woch.'* 1921, xlvii, p. 1428).

—U. Friedemann attaches considerable diagnostic importance to Widal's hæmoclastic crisis, which he has hitherto found present in all cases of scarlet fever, sometimes from the first day of the disease and lasting well into convalescence. Hitherto with few exceptions it has proved negative in all other infectious diseases. The test is carried out as follows: The patient takes his last meal on the night before at 9 p.m. and at 8 a.m. in the morning drinks 200 c.c. of milk. The leucocytes are counted before and after at intervals of 20 minutes. A diminution of 2000 is regarded as a positive reaction, but it is usually much greater in scarlet fever.

J. D. ROLLESTON.

Prophylactic immunisation against smallpox (*'La Pediatria'* 1921, xxix, p. 638).—V. Tripputi, from his observations during an epidemic in Palermo, 1920–21, found that Jennerian immunisation was a sure prevention from smallpox infection. Variolisation by injecting the contents of a variolous vesicle not infected with secondary germs gave rise to a mild reaction, which was efficacious in preventing infection, and was useful in this respect for a community in which a case of smallpox accidentally occurred. During an epidemic all newly born infants should be vaccinated. Vaccination practised in families in which a case of smallpox occurred did not unfailingly preserve all the members from variolous infection but only the greater part of them. If the disease breaks out it is not influenced by the development of the vaccinal pustule, which follows its own course independently of the action of the variolous infection. The smallpox is not influenced by the appearance of the vaccinal reaction. The interpretation of this fact is obvious, since the brief period between the inoculation and the outset of the variola is insufficient for the production of immunity.

VINCENT DICKINSON.

Torticollis from typhoid myositis ('*Arch. Lat. Amer. de Pediatr.*,' 1921, xv, p. 28).—F. Bazán records a case of a mild attack of typhoid fever in a girl, aged 5 years, complicated by torticollis due to myositis of the trapezius which ended in sclerosis. The child was predisposed to the complication by the fact that a year previously she had had an attack of torticollis of eight days' duration, and that she was also the subject of inherited syphilis, as shown by a positive Wassermann reaction.

J. D. ROLLESTON.

Restriction of influenza epidemics in schools ('*Brit. Med. Journ.*,' 1922, i, p. 433).—A. I. Simey and J. Eyre relate that severe epidemics of influenza affected Rugby School, 260 out of nearly 600 boys being affected, with a loss of 5000 school days. Inoculation was advised, but only 123 out of 570 were treated in the holidays. The following vaccine was administered, the number after each variety indicating millions. *Pneumococcus* (50), *Micrococcus catarrhalis* (25), streptococcus (10), *B. pneumoniae* (50), *B. influenzae* (10), *Staphylococcus aureus* (200). Fourteen days afterwards the following vaccine was given: *Pneumococcus* (100), *Micrococcus catarrhalis* (75), streptococcus (50), pneumobacillus (100), *Bacillus septus* (100), *B. influenzae* (30). The doses of the various components are small when compared with those of the Ministry of Health. 233 boys received both vaccines and only 7.3 per cent. were attacked by the disease; 123 boys received one, two or three doses at home and 41 per cent. were infected; 160 were not inoculated at all, and 130 of these, or 81 per cent., developed the disease; 50 received the initial vaccine, and 43, or 84 per cent., contracted the disease, illustrating the fact that the first dose renders the individual more susceptible. Altogether 405 received one or more doses of vaccine, of whom 113, or 27.9 per cent., were subsequently attacked, compared with 81 per cent. among the uninoculated.

CHRISTOPHER ROLLESTON.

Sequels of influenza ('*Glasg. Med. Journ.*,' 1921, i, p. 267).—M. F. G. Main thinks that influenza is a potent factor in initiating many illnesses or in aggravating disabilities already present. A boy, aged 10 years, on recovering from influenza began to complain of thirst and polyuria, and sugar appeared in his urine. There was no history of diabetes in the family. Under treatment his condition greatly improved, and he was discharged free from glycosuria and able to take a fairly generous diet. Another boy, aged 11 years, when suffering from a mild attack of chorea contracted influenza. The chorea became much worse.

J. ALLAN.

Intra-dermo reaction in the early diagnosis of pertussis ('*La Pediatria*,' 1921, xxix, p. 337).—E. Modigliani used the following preparation: A loop of pure culture of the Bordet-Gengou bacillus is suspended in 1 c.c. distilled water with the addition of a few drops of a 3 per cent. solution of toluol. This is placed in an incubator for twenty-four hours at 37° C., or for greater security forty-eight hours; the organisms will then be dead and their bodies broken up. Two drops of this solution are injected in the same way that tuberculin is used. A similar preparation of *B. coli* was used as a control. The test was made on 50 children suffering from various diseases, but free from pertussis; on 38 children from 5 months to 6 years of age, with characteristic signs of whooping-cough; 10 children recovered from whooping-cough; 3 children living with other infected children. In the first series there were no positive reactions; there were never any reactions with the

B. coli preparation. The children with pertussis all gave a positive reaction, which was most marked from seven to fifteen days from the beginning of the illness. In children recovered from the disease, or when it had lasted over two months, the reaction was negative or very feeble. The most remarkable fact was that there was a positive reaction in the three children living with other infected children, and who had not yet had any characteristic symptoms. After a few days the symptoms of pertussis made their appearance.

VINCENT DICKINSON.

Infantile amœbic dysentery (*'La Pédiatrie,'* 1922, xxx, p. 1).—**L. Spolverini** describes 5 cases occurring in children from 2½–12 years of age. They were mild and almost chronic. The diagnosis was problematical until the stools were examined and the organism found, especially as two of the cases occurred in Rome, where dysentery is not common. The stools were often formed, abundant, composed of well-digested material, and from time to time contained more or less large lumps of mucus and sometimes bright blood. The author draws attention to the strict necessity of sterilising the child's clothes and bed-linen from a prophylactic point of view.

VINCENT DICKINSON.

Reviews.

CONFÉRENCES PRATIQUES SUR L'ALIMENTATION DES NOURRISSONS. By P. NOBÉCOURT. Third edition. Paris: Masson et Cie, 1922. Pp. 316. Price 18 fr. net.

IN the seven years that have elapsed since the publication of the last edition of this book (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1914, xi, p. 332.—ED.), fewer advances have probably been made in the subject of infant feeding than in any other branch of medicine of equal importance, owing, doubtless, to the war, which absorbed the attention of the doctors in the belligerent countries. Consequently comparatively few changes and additions are to be found in this new edition, especially as Prof. Nobécourt's aim is not so much a complete exposition of all modern teaching on the subject, as a lucid presentation of the essential principles involved in a correct dietary. In the first thirteen chapters of the book the various problems connected with infant feeding, both natural and artificial, and of weaning are dealt with exhaustively, almost exclusively from a practical point of view, the next two being devoted to a discussion of various laws and regulations affecting the welfare of nursing mothers, wet-nurses, and suckling infants, as well as a clear *résumé* of the position as regards syphilis and the infant. The last five chapters deal with the feeding of infants in various pathological conditions, this section being substantially the same as in the previous edition of the book, in which they were first incorporated. The volume contains forty-five illustrations and is furnished with an adequate index, a further excellent feature being the short summary at the end of each chapter.

The whole book is exceptionally well balanced and clearly written and is well worthy of the author's international reputation. E. M.

HAUTKRANKHEITEN UND SYPHILIS IM SÄUGLINGS- UND KINDESALTER.
 Ein Atlas herausgegeben von Prof. Dr. H. FINKELSTEIN, Berlin,
 Prof. Dr. E. GALEWSKY, Dresden, Dr. L. HALBERSTAEDTER, Berlin.
 Berlin: Julius Springer, 1922. Price in Germany, 260 marks; in
 England, 1040 marks.

THE writers remark in their preface to this "Atlas of Skin Diseases and Syphilis in Infancy and Childhood" that the appearances presented by skin diseases and syphilis in children differ in many respects from those usually seen in the adult. As these peculiarities have not hitherto received sufficient attention in dermatological text-books and atlases, the present volume, which is the joint work of a pædiatrist and dermatologists, has been undertaken with the object of supplying this want. The work consists of 77 pages of text containing a brief account of the skin diseases met with in childhood, and 123 coloured plates, which, with the exception of two provided by Neisser from the Breslau Skin Clinic, are from the collections of Profs. Finkelstein and Galewsky. The plates include illustrations of the acute exanthemata, diphtheria of the skin, serum eruptions, impetigo, scurvy, and the various forms of eczema, tuberculosis of the skin and ringworm, as well as rarer conditions, such as epidermolysis bullosa hereditaria, erythrodermia desquamativa and xeroderma pigmentosum. The different varieties of vaccinal eruptions are portrayed, together with the deplorable effects of intentional or accidental vaccinia in children suffering from eczema. Twenty plates are devoted to syphilis. The writers remark that acquired syphilis in children, which was previously a comparatively rare occurrence, has lately become more frequent.

The clear and concise descriptions in the text and the excellence of the plates should recommend this atlas to every pædiatrist. J. D. R.

ÜBER KLINIK UND EPIDEMIOLOGIE DER PERTUSSIS. By Dr. D. POSPISCHILL. 180 pages. Berlin: S. Karger. Price 35 marks.

THE author of this volume is, in respect of clinical experience, well qualified to write on pertussis. He is physician-in-chief to a large hospital for infectious disease in Vienna, and in the course of his nineteen years' office in that institution Dr. Pospischill has had under his personal observation 25,000 cases of whooping-cough, and carried out some thousands of post-mortem examinations in children dying from that disease.

This monograph, therefore, which deals with the clinical aspects and the post-mortem appearances of the disease, should not only abound in valuable observations, but should also grip the attention of the reader. We regret to say, however, that the work before us has not realised our expectations. The author devotes some 160 pages to the clinical and morbid anatomical features of the disease, in which he lays particular stress upon the alleged lasting effects of pertussis upon the subsequent health of the child. He believes that the results of infection with the disease make themselves felt after many years of apparent health. He finds that nearly all children with a positive Pirquet test have had pertussis. Dr. Pospischill also claims to be able to diagnose present or past pertussis from the presence of a zone of peculiar *râles* at the base of the lungs. In the remaining nineteen pages the author deals with treatment, in which he expresses great faith in the good effects of open air upon the progress of the disease.

We find no mention of the various blood changes produced by the disease, nor of the value of vaccine therapy from the point of view of prophylaxis and treatment. This omission is greatly to be deplored; with such

an abundance of material at his disposal, one ought to be able to come to some definite conclusions regarding the value or otherwise of the newer methods of treatment. Nor can we congratulate the author upon the manner in which he conveys his information. Indeed, we have no hesitation in saying that this work is a model of the manner in which a book should not be written. The style is heavy and uninteresting, and there are no headings to relieve the monotony of reading pages after pages of descriptive matter clothed in an abundance of padding. The work, it is true, contains a number of observations (some of which are of undoubted and others of doubtful value), but these are so submerged in an ocean of verbosity that only patient and skilful diving can succeed in bringing them to the surface. The absence of an index renders it useless as a reference book and the price is prohibitive. Goethe once remarked that the Germans have the special ability "to make knowledge inaccessible." We think that Dr. Pospischill can, in spite of his nationality, lay very good claim to this distinction.

W. M. F.

TECHNIQUE CHIRURGICALE OTO-RHINO-LARYNGOLOGIQUE. Par E. J. MOURE, G. LIÉBAULT, et G. CANUYT. *Prem. fasc.* L'Oreille et ses Annexes. Paris: Librairie Octave Doin, 1922. Pp. xii + 362. 228 figures in the text and one coloured plate.

THIS new addition to an already large literature of the ear, nose and throat is a noteworthy one. It demonstrates well the two antithetical features of French medical and surgical publications—most abominable binding in the flimsiest of paper covers, with splendid detail in the contents, a contrast which might be imitated with advantage in Great Britain. French text-books which are intended for practical use by students and practitioners never permit possible misapprehension of directions as to technique in examination or operative procedure. Anything in which the reader might be misled in studying the text is always clearly illustrated by photograph, drawing or diagram executed with such clearness as to be of real assistance. This is eminently the case in the work under review, and although there are at least twenty out of the 228 figures which might have been discarded as needless, this redundancy is on the right side. The directions contained in the first chapter on the examination and therapeutics of the ear are very complete and profusely illustrated. They are followed by a chapter dealing with the surgery of the auricle. This should be of interest to the pædiatric otologist. Whilst the authors deprecate too much zeal in the endeavour to rectify deformities of congenital origin, the best methods are well described and figured.

The section upon the surgery of the mastoid is excellent, both as regards the acute and the chronic conditions. It contains one paragraph upon mastoiditis in the child and the infant. The authors make the statement that the diagnosis is not generally established until peri-mastoid swelling has made its appearance. We cannot wholly subscribe to this opinion, although in some cases it may be correct. In operating upon infants the reader is warned as to the high situation of the antrum, and admonished as to the necessity of great care and gentleness. The advice is excellent, but might have been rendered even more valuable had mention been made of injuring the facial nerve by a too careless incision. Nor is there any warning given of the necessity for conserving function whenever possible.

The present volume is, of course, merely the first of several. If, however, succeeding numbers are up to the same standard, the complete work will be of high excellence. M. Y.

LES NÉOPLASMES. Revue exclusivement consacrée à la littérature, à l'étude et à la thérapeutique des tumeurs et des cancers paraissant tous les deux mois. 1922. Janvier, tome i, pp. 1-32. Paris: Vigot frères. Abonnements: France et Colonies 15 fr.; Étranger 18 fr.; Le numéro 3 fr.

IN 'Les Néoplasmes' we welcome a new contemporary devoted entirely to the literature, study and treatment of new growths, which is under the direction of Joseph Thomas for medicine, Paul Delbet for surgery, and Charles Schmidt for radium and X rays, and will appear every two months. This first instalment contains a review of the red blood-corpuscles in cases of malignant disease by Prof. Albert Robin, and from the large number of references contained in this carefully classified account provides a valuable summary of our present knowledge. In the other original article, on the relative value of X-rays, radium, and surgical excision in carcinoma of the tongue, Paul Delbet draws on his own experience, and divides the cases into those of the base of the tongue, in which the operative risk is so high that he no longer employs it, and carcinoma of the body and tip of the tongue, in which he prefers excision followed by the intensive application of X rays to the alternative of the insertion of radium tubes into the growth. This number also contains 34 abstracts arranged alphabetically under the names of the authors. H. R.

THE JOURNAL OF METABOLIC RESEARCH. Edited by FREDERICK M. ALLEN. Published monthly by The Physiatrie Institute, Morristown, New Jersey, U.S.A. 4°. January, 1922, vol. i, No. 1. Pp. 163, with many illustrations and diagrams. Price \$10 per year.

THE first number of this new journal contains six papers from the Hospital of the Rockefeller Institute for Medical Research (New York), and one from the Physiatrie Institute (Morristown, New Jersey). Five of the articles are concerned with the pathology of diabetes, and two with experiments on carbohydrate metabolism and diabetes. Of considerable general medical interest from the ordinary clinical point of view are two articles: (1) "Nervous Influences in the Etiology of Experimental Diabetes," by Dr. F. M. Allen; and (2) "The Influence of Glucose Ingestion on Diuresis and Blood Composition in Non-Diabetic and Diabetic Persons," by J. W. Sherrill and H. J. John. From his experiments in regard to nervous influences, Allen concludes that no influence of emotion upon the production of diabetes could be demonstrated. In one instance a violent general traumatism seemed to activate a patent diabetes, but the effect was transitory. The Claude Bernard piqure seemed to be a genuine factor in producing diabetes in one predisposed dog. Complete separation of a pancreas remnant from its original nerve supply failed to give rise to diabetes or any demonstrable lowering of assimilation. It also failed to affect either the occurrence or the rate of hydropic degeneration in the islands of Langerhans; this degeneration ran parallel with the course of the diabetes the same as when the nerve supply was left undisturbed.

The papers should each one of them be read in the original by those interested in the experimental study of diabetes mellitus and metabolism. The printing of the text and the quality of the plates are excellent, and the

journal will doubtless meet with a good reception. The editor, in his introductory remarks, writes: "The journal is intended to serve for publication of the results of original research. As it occupies a border zone between the laboratory and the clinic it should be of interest to laboratory and clinical investigators, and to such medical practitioners as wish to keep in touch with fundamental scientific progress in metabolism." F. P. W.

A COMPARATIVE STUDY OF THE HEALTH OF MISSIONARY FAMILIES IN JAPAN AND CHINA. By WILLIAM G. LENNOX, M.D., Department of Economics, University of Denver, U.S.A. Pp. 44.

MORE than a year ago the author published a paper on the health of missionary families in China, the present pamphlet being a supplementary study of a similar investigation among missionaries in Japan, including a comparison of these results with the health of a similarly constituted group of persons in the United States.

The information, which was collected by means of a *questionnaire* sent to the 375 missionary families in Japan, of whom one half replied, is of wider interest than might at first be supposed, and of such a varied character as to preclude even the briefest *résumé* in the space at our disposal. Among the principal facts elicited are the evidence that children in Japan show a death-rate far below that of children in China, and below even the selected group in America, the figures for the various groups being—for missionaries in China, 60; for the selected group in America, 48; and for missionaries in Japan, 43. The remarkably low death-rate of infants and children in Japan, comparing well with the figures of 42 for professional classes in England, is, as Dr. Lennox points out, offset by the excessively high foetal death-rate, 134 of each 1000 pregnancies among missionaries resulting in miscarriages or stillbirths, as against 117 in the American group. Two-thirds of these miscarriages have been ascribed by the wives to general conditions of over-work and under-health, Dr. Lennox emphasising the evident need for better professional care of the mothers during pregnancy and confinement, as also the fact that, in view of the large percentage of deaths of children from difficult feeding and malnutrition, the problem of a proper diet urgently presents itself for solution. Diphtheria is nearly three times more prevalent in Japan than in China or America, the author suggesting that the children, especially those for whom diphtheria antitoxin is not immediately available, should be given the Schick test, and if found not to be immune should be made immune by toxin-antitoxin injections.

Many other points of interest are dealt with, Dr. Lennox's work undoubtedly forming a useful contribution to the subject of pædiatrics, not only affecting the health of missionary workers in Japan, but also conducing towards a better understanding of the broader aspects of the problems involved.

E. M.

THE
BRITISH JOURNAL
OF
CHILDREN'S DISEASES.

VOL. XIX.

JULY—SEPTEMBER, 1922.

Nos. 223-225.

Original Articles.

THE EFFECT OF SPECIAL HIGH PROTEIN DIETS IN THE
TREATMENT OF CHRONIC INTESTINAL INDIGESTION IN
CHILDREN.*

By ALAN BROWN, M.B., ANGELIA M. COURTNEY, B.A., and IDA F.
MACLACHLAN, B.A.,
Toronto.

CHRONIC intestinal indigestion, the coeliac disease first described by Gee (1), Gibbons (2), and Cheadle (3), or Herter's intestinal infantilism (4), is characterised by impaired bodily development and an abnormal digestive condition. The stools are large, often light-coloured and very foul, at times diarrhoeal, and there is usually marked abdominal distension. It is to be distinguished from the chronic indigestion due to pancreatic insufficiency, for in intestinal infantilism no benefit is derived from feeding pancreatic extract (5) (6).

As an excellent review of the history of this disease has been made recently by R. Miller (7), reference to the literature will be made here only for the purpose of illustration and comparison.

Herter gave the name "intestinal infantilism" to this condition because he considered it to be associated with the presence of an abnormal intestinal flora, in which there was a preponderance of the acidophilic, Gram-positive organisms characteristic of the nursing period, particularly *B. bifidus* and an organism which Herter called *B. infantilis*. With this

* From the Nutritional Research Laboratories of the Hospital for Sick Children and the Department of Pediatrics, University of Toronto. Read by invitation before the Buffalo, N.Y., Academy of Medicine, April, 1922.

preponderance was found almost an exclusion of the *B. coli* and *Lactis aerogenes* groups. Herter thought there was an impaired absorption due to a chronic inflamed condition of the intestinal tract brought about by this abnormal flora. He found indicanuria and other evidences of intestinal putrefaction. There has not been general acceptance of this theory of a characteristic abnormal flora and consequent enteritis in intestinal infantilism, and some investigators even claim that Herter's findings have not been confirmed (8). Freeman's cases, however, in which the stool examinations were made by Herter, gave positive results (9). More extended bacteriological studies are necessary before Herter's theory can be either accepted or discarded.

Whatever may be found to be the cause of the condition, there is a general agreement that the retention of fat and of certain of the mineral salts, notably calcium and phosphorus, is much below normal if there is not actually a negative balance of the two last mentioned, and that not infrequently there is but small retention of the other salts and of nitrogen.

This opinion is based partly upon clinical observations of the amount and nature of the fæces considered with the commonly inadequate food intake, and partly upon a considerable number of quantitative determinations.

The normally small retention or even loss from the body of fat, salts and nitrogen can thus be accounted for by the large excretion in the fæces. There have been too few quantitative studies made on the urine of children suffering from intestinal infantilism to determine whether or not there is regularly any abnormality in the urinary excretion which could affect unfavourably the retention. In the small number of cases in which the determinations have been made there has been found the low urinary excretion of calcium characteristic of infant metabolism.

The small retention of fat, nitrogen and salts to be expected with the large stools typical of this disease is made worse by a common method of treatment—that of cutting the food intake, especially of fat, to a minimum. The disadvantage of such procedure when not necessitated by diarrhœa or vomiting is well brought out in some tables by Holt, Courtney and Fales, on fat retention by children suffering from chronic intestinal indigestion (10). A study of these tables shows that the average loss of fat by the ten children taking over 35 grm. of fat a day was between 8 and 9 grm., and that of those taking less than 35 grm. was between 7 and 8 grm. With the larger intake this gave an average retention of over 38 grm. a day, while with the smaller intake the retention averaged only about 18 grm. a day.

The metabolism findings by Holt (11) on E. R— and by McCrudden

(12) on F. S— both show the important part played by the increased intake in the improving of the retention.

In general it is essential to give to children suffering from chronic intestinal indigestion a diet capable of supplying sufficient calories as well as all the elements needed for growth—adequate protein, salts, and the accessory food factors. In looking for such a food, at once one is met with difficulties. That carbohydrate must be discarded to the greatest possible extent all clinical experience confirms. The marked increase in fermentation so commonly observed with increase of carbohydrate in the diet is sufficient evidence of intolerance. Herter's view of an abnormal acidophil flora lends support to the removal of carbohydrate from the food. Fat also is usually greatly cut down or practically excluded because of the characteristic large loss of fat in the stools. Holt's (10) average on twenty-one determinations was between 7 and 8 gm. daily in comparison with his average for normal children on mixed diet of about $2\frac{1}{2}$ gm. daily. Moreover, when there is an acid condition in the intestines, fat is as a rule borne well only by breast-fed infants. Because of the evidences of putrefaction—the odour of the stools, indicanuria, and the presence of putrefactive products in both urine and stools as found by Herter (4)—some have considered that the intake of protein also must be greatly reduced. By these, gelatin has been largely used as a partial substitute for protein and for the energy-supplying foods as providing calories and some of the necessary amino-acids, and at the same time not containing the chief forerunners of the putrefactive products.

There are several reasons for adopting the special high protein diet used by us in chronic intestinal indigestion apart from the intolerance for carbohydrate and for fat exhibited in this disease. Fermentation processes are evidently abnormally active. Protein is efficient in curbing these by replacing the medium in which fermentation is active by one unfavourable to it, and by changing the reaction of the intestinal contents from acid to alkaline. If the presence of an acid-loving flora is the cause of the condition, a high protein diet is thus the rational one. At the same time, by providing a considerable part of the food in the form of protein milk or lactic acid milk, there is introduced into the intestinal tract a large quantity of an organism opposed to the infantile type described by Herter.

This special high protein diet, including lactic milk or protein milk as an important component, by providing a medium unfavourable to fermentation and at the same time introducing large quantities of an organism antagonistic to the infantile type, satisfies either condition considered essential for establishing a change in the intestinal flora.

According to the more widely accepted theory, first propounded by Escherich, and recently set forth in an article by Sherman and Lohnes (13), the change of medium is of the first importance. According to Ford, Blackfan and Bachelor (14), however, a change in intestinal flora can more often be attributed to the introduction of an opposing organism than is generally supposed to be the case.

Moreover, in a diet containing protein milk or lactic acid milk supplemented by curds of milk, a food is provided which is the richest possible in calcium and phosphate—the salt elements most needed in view of the backward development of the children with intestinal infantilism. With such a food as this, the fat can be increased fairly rapidly once alkaline conditions are established in the intestines. On the other hand, carbohydrate cannot be used to any extent until a cure is well under way, and then only with the greatest caution.

ANALYSIS OF CASES.

As the title of this paper indicates, we have not restricted ourselves exclusively to a discussion of true or severe intestinal indigestion for the reason that we wished to include cases of a milder type presenting symptoms resembling those of the severer grade. It is just within the limits of possibility that these so-called mild types, if untreated, might develop the more severe grade of indigestion, with its consequent much restricted growth. The general management of both types, however, is more or less on similar lines.

We have divided our cases into three groups, viz. (1) mild, (2) moderately severe, and (3) severe, this last group representing the classical type of chronic intestinal indigestion or infantilism. A detailed study is here limited to this series. In the first group there were four cases, ranging in age from two to five years. The chief symptoms in this group consisted of looseness of the bowels with definite evidence of fermentation, general lack of tone and fatigue with restless sleep. The cases in this group were only slightly under weight. On examination there was a mild degree of secondary anæmia, but usually no definite distension. In the previous histories of this group there was a record of excessive feeding with bread-stuffs and sweets; the symptoms had existed for a period of from four months to about one year before coming under observation. The response to the moderate high protein diet with lactic acid milk took place in about six to nine months' time.

In the second group there were six cases, ranging in age from eighteen months to five years. The chief points of difference between this and the first group of this series lay in the fact that all the symptoms of

carbohydrate indigestion were exaggerated, that there was pronounced evidence of under-nutrition with distension, that all in this series required a more rigid exclusion of carbohydrate from their dietary regimen, and that recovery took anywhere from six months to one year longer. At times it was extremely difficult to differentiate this group from the extreme type of infantilism.

In the third group, which represented the extreme type, there were nine cases, six of whom have been followed to complete recovery. Of the remaining three cases one is in the process of recovery; the parents of one became discouraged just at the period when the diet *regime* was being widened and sought other advice; and the last one was in an extreme condition, five years old, weight 15 lb., and the parents refused treatment. All the cases in this group presented the classical picture of varying degrees of emaciation with greatly distended abdomen, lack of growth, physical and mental fatigue and a moderate degree of anæmia. The previous histories of these patients were fairly regular, consisting of repeated digestive upsets usually associated with diarrhœa and continuously a high carbohydrate diet. It should be noted that acholic stools were not always observed in our series; we do not consider this type of stool typical of the condition.

The general plan of treatment in this series has been fairly uniform throughout. Until the stools show no evidence of fermentation and have lost their acid reaction the patients are held strictly to the exclusive protein diet (A); the changes are then gradually made according to the tolerance of the patients. The length of time on each diet will naturally vary with the patient and his ability to tolerate more food. In general, however, the average length of time the patients (seven patients) were kept on the high protein diets, A to D, was about eighteen months to two years. This does not include one (Burbidge) who, with exceptions, was held fairly well to the high protein diet for about six years. Following the strict protein diets, carbohydrate foods as indicated in the diets are gradually added one at a time, and the child in this manner cautiously brought up to a full diet. It not infrequently happened that the first added carbohydrate had to be eliminated and the strictly protein diet resorted to again.

DIET FOR MILD TYPE.

Breakfast:

- Rice, oatmeal, farina, cream of wheat, cornmeal, hominy (all cooked 4 hours),
1 to 3 rounded tablespoons.
- 1 to 3 pieces of lean bacon or 1 to 3 tablespoons of beef, chop or chicken.
- 1 to 2 pieces of zwieback (unsweetened).
- 6 to 8 ounces of 2 per cent. lactic acid milk or plain boiled 2 per cent. skim milk.

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Dinner :

- 1 to 4 rounded tablespoons of scraped steak, chop or chicken, soft boiled, poached, or scrambled egg.
- 1 to 2 tablespoons of peas, spinach, lima beans, lentils, carrots (all put through a sieve).
- Custard, cornstarch or junket, occasionally (if constipated and it is tolerated) 1 to 2 tablespoons of apple sauce or pulp of prunes.
- 1 to 2 pieces of zwieback (unsweetened).

Tea :

Same as breakfast, in addition add custard, cornstarch or junket if hungry.

DIET FOR MODERATELY SEVERE TYPE.

Breakfast :

- Rice, oatmeal, farina or cream of wheat (cooked 4 hours), 1 to 3 rounded teaspoons.
- 3 pieces of lean bacon or 1 to 3 tablespoons of beef, chop or chicken.
- 1 zwieback (unsweetened).
- 6 to 8 oz. of protein milk or 2 per cent. lactic acid milk.

Dinner :

- 1 to 4 rounded tablespoons of scraped steak, chop or chicken, occasionally a soft-boiled egg.
- 2 cups of junket with the whey removed, or 1 cup of custard, or cornstarch.
- 1 zwieback (unsweetened).
- 6 ounces of protein milk or 2 per cent. lactic acid milk.

Tea :

Same as breakfast without the meat; occasionally cream cheese or plain gelatin pudding.

N.B.—Many patients are allowed as much junket curds as they will take.

DIET FOR SEVERE TYPE.

Diet A :

Protein milk 8 to 10 oz. every 4 hours for 5 feedings. This initial or corrective diet may last for weeks, depending upon the rapidity with which all signs of carbohydrate indigestion disappear.

Diet B :

- 6 a.m.—8 oz. protein milk.
- 10 a.m.—1 to 3 rounded tablespoons of curds, 8 to 10 oz. protein milk.
- 2 p.m.—Same as 10 a.m.
- 6 p.m.—Same as 10 a.m.
- 10 p.m.—6 to 8 oz. protein milk.

The duration of this diet may be from 10 days to several weeks, depending on the tolerance of the child. Patients not only make a pronounced qualitative gain, but actually increase in weight a very appreciable amount in spite of the low carbohydrate content.

Diet C :

- 6 a.m.—8 oz. protein milk.
- 10 a.m.—1 to 4 rounded tablespoons of curds, 8 to 10 oz. protein milk.
- 2 p.m.—1 increasing to 4 rounded tablespoons scraped steak or chicken, 1 to 4 tablespoons curds.
- 6 p.m.—Same as 10 a.m.
- 10 p.m.—6 to 8 oz. protein milk.

Diet D :

Breakfast.—4 to 5 tablespoons bacon or chicken.

3 to 4 tablespoons curds, 8 to 10 oz. protein milk.

Dinner.—4 to 5 tablespoons chicken, chop or beef, 4 tablespoons curds.

1 to 4 tablespoons cream cheese or 1 oz. gelatin.

8 to 10 oz. protein milk.

Tea.—4 tablespoons chicken, 4 tablespoons curds.

10 oz. protein milk.

The above-mentioned diets are referred to in the text as high protein. To diet "D" carbohydrates are gradually added in the following order, replacing one or more of the protein foods : Rice, 1 tablespoon, increasing to 3 tablespoons ; farina or cream of wheat ; peas ; spinach ; carrots ; $\frac{1}{2}$, increasing to 1 zwieback.

In this manner one gradually works up to the diet as outlined for the mild type, and finally to the normal child's diet. During the entire course of high protein feeding, cod-liver oil in max doses three times a day, gradually increasing to dr. j three times a day, is given continuously.

It should be remembered that the high protein diet is very constipating, and consequently a laxative will have to be administered fairly regularly. Compound rhubarb powder or aromatic cascara we have found to be most useful in this respect. They should be given in divided doses three times a day in order to be effective.

The approximate distribution of calories as fat, carbohydrate and protein in these special diets is shown in Table I.

TABLE I.—*Approximate Distribution of Calories in Special High Protein Diets.*

DIET A.				
<i>Severe Type.</i>				
	Fat.	Carbohydrate.	Protein.	Total calories.
Calories	226 to 364	108 to 135	172 to 215	506 to 714
Per cent. of total calories	44.7 to 51.0	21.3 to 18.9	34.0 to 30.1	—
DIET B.				
Calories	315 to 638	110 to 147	200 to 309	625 to 1094
Per cent. of total calories	50.4 to 58.3	17.6 to 13.4	32.0 to 28.3	—
DIET C.				
Calories	295 to 755	90 to 131	192 to 409	577 to 1295
Per cent. of total calories	51.1 to 58.3	15.6 to 10.1	33.3 to 31.6	—
DIET D.				
Calories	840 to 1169	113 to 131	620 to 748	1573 to 2048
Per cent. of total calories	53.4 to 57.1	7.2 to 6.4	39.4 to 36.5	—
<i>Moderately Severe Type.</i>				
Calories	393 to 748	304 to 443	218 to 427	915 to 1618
Per cent. of total calories	43.0 to 46.2	33.2 to 27.4	23.8 to 26.4	—
<i>Mild Type.</i>				
Calories	588 to 873	443 to 781	284 to 497	1315 to 2151
Per cent. of total calories	44.7 to 40.6	33.7 to 36.3	21.6 to 23.1	—

The approximate distribution of calories as fat, carbohydrate and protein in the diets of the cases studied chemically is given in Table II.

TABLE II.—*Approximate Distribution of Calories in Diets of Cases Studied.*

DIET OF J. B.—: FIRST PERIOD.						
Weight 34 lb.						
	Fat.	Carbo- hydrate.	Protein.	Total calories.	Calories per lb.	Calories per kilo.
Calories	398	135	478	1011	30	66
Per cent. of total calories	39.4	13.3	47.3	—	—	—
DIET OF J. B.—: SECOND PERIOD.						
Weight 50 lb.						
Calories	703	366	463	1532	31	67
Per cent. of total calories	45.9	23.9	30.2	—	—	—
DIET OF H. B.—.						
Weight 23 lb.						
Calories	459	356	314	1129	49	108
Per cent. of total calories	40.7	31.5	27.8	—	—	—
DIET OF B. F.—: BEFORE TREATMENT.						
Weight 22 lb.						
Calories	235	382	224	841	38	84
Per cent. of total calories	28.0	45.4	26.6	—	—	—

The computation of the calories of the standard diets, as well as those of the children on whom metabolism observations were made, was based mainly on data obtained from Lock's 'Food Values' (15).

The extremely high percentage of calories as protein in the diet in J. B.—'s first period is to be noted. In the second period, when he had made a considerable clinical improvement, the proportion of protein was less, and that of both fat and carbohydrate appreciably more.

H. B.— was making steady improvement on his diet, in which the carbohydrate was a little higher and the fat a little lower than in J. B.—'s later diet.

B. F.—'s before treatment diet shows the low proportion of fat calories usual in the diets chosen for patients with this disease. The percentage of the total calories as protein is not low, though the actual number of calories as protein is not large. On the other hand, though the percentage of the total calories as carbohydrate is large, the actual number of calories is not great.

WEIGHTS.

The average weight at the beginning of the treatment of seven patients (severe type) was 20 lb., and at the end of treatment, *i. e.* when carbohydrates were being added, was 35 lb. The average

Name.	Age when first consulted.	Duration of symptoms.	Period of H.P. diet.	Weight at beginning of treatment.	Period of stationary weight or little gain.	Weight at end of treatment.	Comments.
Francis	2 years	1 year	9 months	15½ lb. lost to 14 lb.	5 months	26½ lb.	Poor co-operation from parents; frequent upsets due to dietary errors.
Jewett	14 months	3 to 4 months	2 years	18½ lb. lost to 15 lb.	7 months	28 lb.	November, 1921, weight 49 lb., height 44 in.; 5 years. Normal weight 39 lb., height 40 in.; 5 years.
Burbidge	2½ years	1 year	6 years	20 lb., height 29½ in.; at 5 years 26 lb., at 7 years 29 lb., at 8½ years 34 lb., and height 38½ in.; at 9 years 48 lb., height 47 in.	2 years	48 lb.	March, 1922, weight 52 lb., height 45 in.; 9 years. Normal weight 45 lb., height 45 in.; 7 years.
Banks	5½ years	4 years	1 year	26 lb.	9 months	38 lb.	January, 1922, weight 57 lb., height 48½ in.; 12 years. Normal weight 55 lb., height 48 in.; 9 years.
Baker	1½ years	4 months	3 years	16 lb.	2 years	42 lb.	September, 1921, weight 44 lb., height 41 in.; 5 years. Normal weight 39 lb., height 40 in.; 5 years.
Blackwell	5½ years	2 to 3 years	2 years	24 lb., height 36 in.	8 months	35 lb.	November, 1921, weight 38 lb., height 40½ in.; 7 years. Normal weight 45 lb., height 44 in.; 5 years.
Douglas	2 years	4 months	1½ to 2 years	21 lb.	1 year	31 lb.	For final results am indebted to Dr. Langley Porter, of San Francisco, who kindly co-operated with me in this case.

period of stationary weight was approximately one year; the shortest period of stationary weight was five months, and the longest period two years. When once these patients commenced to gain in weight the increase was fairly consistent, being broken only by occasional upsets. Qualitative gain was usually the first clinical evidence of improvement, signified by a reduction in distension, improvement in vigour, tissue turgor and disposition. It was, indeed, most gratifying to see these patients gain so consistently on a strictly protein diet, this being quite contrary to the usual opinion.

Of five cases in this series two were above the normal in weight and height at the end of treatment, while the remaining three were from two to three years below the normal in height; at their present rapid gain in height, however, it should only be a matter of another two years before they would be normal. Presumably, then, none in this series would end as dwarfs. Indeed, it may reasonably be expected that at least one or two of these children would be above normal at or about puberty. Another striking feature of all of this series has been their comparative freedom from parenteral infections. True it is, they were specially guarded against intercurrent infections, but they were nevertheless exposed, and it appeared at least from the clinical standpoint that their resistance was somewhat better than that of the average child.

CHEMICAL FINDINGS.

In three cases of chronic intestinal indigestion the quantitative analysis of food, faeces and urine for fat, nitrogen and various salts was made. Two of the children had been under treatment for some time with the special high protein diet, and the other was a mild case with whom treatment had not been begun. One of the children under treatment was doing so well at the time of the observation that only one study was made. With the other, a considerably older child, progress was slower, and a second study was made after a two years' interval.

Table V gives the composition of the faeces in these four cases. Tables III and IV give for comparison the values found in the literature for

TABLE III.—*Per Cent. of Fat in Stools in Chronic Intestinal Indigestion.*
(From various investigators.)

Cheadle, W. B. ('Lancet,' 1903, i, p. 1497)	63·35	19·8	24·3	44·9	49·65	33·0
Still, G. F. ('Lancet,' 1918, ii, pp. 163, 193)	26·9	73·1	42·5	—	—	—
Cautley, E. ('Arch. of Pediatrics,' 1921, xxxviii, p. 163)	44·4	—	—	—	—	—
Miller, R. ('Lancet,' 1920, ii, p. 1166)	39·6	—	—	—	—	—
Miller, Webster and Perkins ('Lancet,' 1920, ii, p. 894)	57·14	52·4	24 to 28	—	—	—

TABLE IV.—*Composition of Fæces in Chronic Intestinal Indigestion and in One Normal Case. (From various investigators.)*

Reference.	Total solids, grm.	Fat, grm.	Fat per cent. of total solids.	Nitrogen, grm.	CaO, grm.	CaO per cent. of total solids.	P ₂ O ₅ , grm.	P ₂ O ₅ per cent. of total solids.
Holt, L. E. <i>et al.</i> ('Amer. Journ. Dis. Child.,' 1917, xiv, p. 222)	18.53	11.22	60.5	.755	.704	3.8	.722	3.9
Do.	31.50	14.64	46.5	1.409	1.099	3.5	.745	2.4
Herter, C. A. (Monograph, 1908)	—	9.73	—	.780	—	—	—	—
Do.	—	8.03	—	1.098	—	—	—	—
McCrudden " and Fales ('Journ. Exp. Med.,' 1912, xv, p. 450; 1913, xvii, pp. 24, 202)	38.5	5.70	14.8	2.253	1.710	4.4	1.223	3.2
Do.	47.3	—	—	2.732	.946	2.0	.605	1.3
"	19.6	3.06	16.0	.901	1.464	7.5	—	—
<i>Normal Case.</i>								
"	20.4	4.74	23.2	1.081	1.699	8.3	.732	3.6

TABLE V.—*Composition of Fæces in Chronic Intestinal Indigestion.*

	Total solids, grm.	Fat, grm.	Fat per cent. of solids.	Nitrogen, grm.	Nitrogen per cent. of solids.	Total salts, grm.	Total salts per cent. of solids.	CaO, grm.	CaO per cent. of solids.	MgO, grm.
Treated case:										
J. B—, 1920 .	20.8	6.743	32.4	.852	4.1	5.872	28.2	2.550	12.3	.248
J. B—, 1922 .	22.35	7.502	30.6	.995	4.5	5.752	25.7	2.378	10.6	.246
Treated case:										
H. B— .	11.25	2.471	22.0	.522	4.6	4.329	38.5	1.818	16.2	.186
Untreated case, mild: B. F—	17.76	4.818	27.1	.877	4.9	3.854	21.7	1.542	8.7	.175
	MgO per cent. of solids.	P ₂ O ₅ , grm.	P ₂ O ₅ per cent. of solids.	Cl, grm.	Cl per cent. of solids.	K ₂ O, grm.	K ₂ O per cent. of solids.	Na ₂ O, grm.	Na ₂ O per cent. of solids.	
Treated case:										
J. B—, 1920 .	1.2	1.575	7.6	.045	.2	.462	2.2	.113	.5	
J. B—, 1922 .	1.1	2.012	9.0	.064	.3	.557	2.5	.106	.5	
Treated case:										
H. B— .	1.7	1.530	13.6	.018	.2	.270	2.4	.020	.2	
Untreated case, mild: B. F—	1.0	1.673	9.4	.028	.2	.369	2.1	.019	.1	

TABLE VI.—*Composition of Fæces in Mild Case of Chronic Intestinal Indigestion, Untreated, and in One Normal Case.*

	Total solids, grm.	Fat, grm.	Fat per cent. of total solids.	Nitrogen, grm.	CaO, grm.	CaO per cent. of total solids.	P ₂ O ₅ , grm.	P ₂ O ₅ per cent. of total solids.
Abnormal:								
B. F— .	17.76	4.82	27.1	.877	1.542	8.7	1.673	9.4
Normal:								
E. M— .	12.23	3.42	28.0	.540	1.172	9.6	.890	7.3

the more significant constituents in this disease—fat, nitrogen, calcium and phosphates. In Table VI are shown corresponding values found by us for a child normal as to digestion compared with those for our untreated case of chronic intestinal indigestion.

It must be kept in mind in studying Table V that J. B— was a child eight years of age at the time of the first observation, though weighing only 34 lb., while H. B— and B. F— were only three years of age when the observation was made, and weighed respectively 23 and 22 lb.

In Table III is seen the high percentage of fat in the stools in chronic intestinal indigestion as reported by different observers. Holt reports an average of 18 per cent. for a large number of normal children taking a mixed diet.

In Table IV are seen the large actual as well as percentage losses in the fæces found in this disease. McCrudden's normal case included in this table showed no essential difference in stool composition from his abnormal ones, but the normal happened to be a much larger child, taking much more food.

Table V shows for our cases the typical large losses in the fæces of fat, nitrogen and the important salts. There is seen no striking change in the composition of fæces of J. B— in the second period from that in the first. The fat and carbohydrate in the diet had been increased, and the intake of potassium and of phosphates was distinctly higher in the second period. In the findings for H. B— it is seen that, though the intake of fat and all the salts except sodium and chlorine was closely comparable to that of J. B— in his first period, yet H. B—'s fæces show much smaller losses of fat, calcium, magnesium and potassium than those of J. B—. The significance of this fact is appreciated when it is considered that H. B—, following the period of observation, made phenomenally rapid progress clinically, while J. B— gained at a much slower rate. The contrast between the findings for H. B— and those of B. F—, the untreated case, is quite marked. B. F—, who had in most respects a much smaller intake, lost in the fæces much more fat and nitrogen and almost as much calcium and magnesium as H. B. This abnormal loss in the fæces of B. F— is brought out more strikingly in Table VI, where it is contrasted with the loss in the fæces of a child normal as to digestion. This child was about twelve years of age and was taking a large quantity of food, about 100 grm. of fat, and more than twice as much of nitrogen and nearly twice as much of the various salts as B. F—, yet the loss in the fæces was distinctly less in every respect.

Table VIII gives the intake and the excretion in the urine found in the four studies made by us. Table VII gives the corresponding values for nitrogen, calcium and phosphates as found by other observers, while

Table IX gives them for our untreated case contrasted with those for the normal child.

TABLE VII.—*Urinary Excretion of Nitrogen, Calcium and Phosphates in Chronic Intestinal Indigestion and in One Normal Case. (From various investigators.)*

Reference.	Nitrogen intake, grm.	Nitrogen in urine, grm.	CaO intake, grm.	CaO in urine, grm.	P ₂ O ₅ intake, grm.	P ₂ O ₅ in urine, grm.
Holt <i>et al.</i>	5·84	4·22	·505	·018	1·305	·715
"	8·57	5·34	1·328	·017	2·631	1·395
Herter	6·65	5·64	·982	·012	2·029	1·050
McCrudden and Fales:						
F. S—	5·94	2·685	1·058	·018	1·985	·452
F. S—	11·05	5·485	1·685	·020	3·155	1·403
F. H—	8·13	5·573	1·470	·026	—	—
<i>Normal Case.</i>						
McCrudden and Fales:						
W. M—	14·35	10·83	2·498	·371	4·118	2·352

TABLE VIII.—*Excretion in Urine in Chronic Intestinal Indigestion.*

	Nitrogen intake, grm.	Nitrogen in urine, grm.	Total salts intake, grm.	Total salts in urine, grm.	CaO intake, grm.	CaO in urine, grm.	MgO intake, grm.	MgO in urine, grm.
Treated case:								
J. B—, 1920	18·644	16·312	19·733	13·358	2·990	·094	·443	·091
J. B—, 1922	18·051	15·771	21·047	14·664	2·764	·043	·435	·145
Treated case:								
H. B—	12·233	8·318	12·151	5·246	2·456	·149	·387	·069
Untreated case, mild: B. F—	6·528	5·586	11·468	6·161	1·585	·008	·271	·043
	P ₂ O ₅ intake, grm.	P ₂ O ₅ in urine, grm.	Cl intake, grm.	Cl in urine, grm.	K ₂ O intake, grm.	K ₂ O in urine, grm.	Na ₂ O intake, grm.	Na ₂ O in urine, grm.
Treated case:								
J. B—, 1920	4·519	1·867	5·020	4·909	2·644	2·154	4·764	4·297
J. B—, 1922	5·230	2·419	4·993	5·132	4·383	3·023	4·677	4·364
Treated case:								
H. B—	5·263	1·544	1·635	1·221	2·545	1·661	1·919	·850
Untreated case, mild: B. F—	3·082	·883	1·955	1·210	2·702	1·750	1·373	1·461

TABLE IX.—*Urinary Excretion of Nitrogen, Calcium and Phosphates in Mild Case of Chronic Intestinal Indigestion and in One Normal Case.*

	Nitrogen intake, grm.	Nitrogen in urine, grm.	CaO intake, grm.	CaO in urine, grm.	P ₂ O ₅ intake, grm.	P ₂ O ₅ in urine, grm.
Abnormal: B. F—	6·528	5·586	1·585	·008	3·082	·883
Normal: E. M—	16·414	12·979	2·728	·580	5·250	2·494

The only peculiarity shown in Table VII is the low calcium content of the urine, in all these cases of chronic intestinal indigestion. In Table VIII J. B—'s findings show no significant difference in the second period

from those in the first period. What differences there are in the urinary excretion, except in the case of magnesium, can be associated with changes in intake. The failure to show any essential change in the urinary excretion after the interval agrees with what was found in regard to the faeces of this child. Except for calcium, to which reference will be made again, H. B— shows a much smaller excretion in the urine in proportion to the intake than does J. B—. B. F— excreted more nitrogen and sodium and chlorine proportionately to the intake than did either H. B— or the normal child, E. M— (Table IX).

The really interesting point brought out in the tables on the urinary excretion is that the extremely low calcium content of the urine typical of chronic intestinal indigestion, as shown in Table VII, is found in our untreated case, while J. B—, who was only gradually outgrowing the condition, had a somewhat greater excretion than any of the abnormal cases, and H. B—, who was making more rapid recovery, had still more calcium in the urine. Both normal children, McCrudden's and ours, show a much greater calcium content of the urine than any of the abnormal. That this small excretion of calcium in the urine in chronic intestinal indigestion is not immediately dependent upon the small absorption of calcium from the intestinal tract typical in the disease is shown in the two periods of F. S— reported by McCrudden. In the first period there was no absorption, the loss in the faeces being greater than the intake, while in the second period there was an absorption of .74 gm. of calcium oxide. Yet there was practically the same low calcium content of the urine in both periods.

In Table X is shown for the four periods studied the actual retention of fat, nitrogen, and salts, and the percentage of the intake retained.

TABLE X.—*Retention in Chronic Intestinal Indigestion.*

	Fat, gram.	Fat per cent. of intake.	Nitrogen, gram.	Nitrogen per cent. of intake.	Total salts, gram.	Total salts per cent. of intake.	CaO, gram.	CaO per cent. of intake.	MgO, gram.
Treated case:									
J. B—, 1920 .	36.04	84.3	1.480	7.9	.503	2.5	.346	11.6	.104
J. B—, 1922 .	68.1	90.1	1.285	7.1	.631	3.0	.343	12.4	.044
Treated case:									
H. B— .	46.93	95.0	3.393	27.7	2.576	21.2	.489	19.9	.132
Untreated case, mild: B. F—	13.66	73.9	.066	1.0	1.453	12.7	.035	2.2	.053
	MgO per cent. of intake.	P ₂ O ₅ gram.	P ₂ O ₅ per cent. of intake.	Cl, gram.	Cl per cent. of intake.	K ₂ O, gram.	K ₂ O per cent. of intake.	Na ₂ O, gram.	Na ₂ O per cent. of intake.
Treated case:									
J. B—, 1920 .	23.5	1.077	23.9	.066	1.3	.028	1.1	.354	7.4
J. B—, 1922 .	10.1	.799	15.3	0	0	.803	18.3	.207	4.4
Treated case:									
H. B— .	34.1	2.189	41.6	.396	24.2	.614	24.1	1.049	54.7
Untreated case, mild: B. F—	19.4	.526	17.0	.717	36.7	.583	21.6	0	0

J. B—'s retention in the second period was not essentially changed from that in the first, except that the actual retention and the percentages of fat and of potassium were considerably increased—both constituents in which the intake was markedly greater. The phosphate retention did not increase with a higher intake. H. B—'s retention—both actually and as percentage of the intake, was large. The untreated child, B. F—, made a very poor retention of the important constituents, fat, nitrogen and calcium, and a really good retention of potassium and chlorine only.

SUMMARY.

The outstanding feature of this condition accepted generally is fat intolerance. It is well understood that no fat intolerance can be overcome in the presence of excessive fermentation such as exists in all cases of chronic intestinal indigestion. With the view of improving the fat absorption a diet that will reduce to a minimum the process of fermentation has been selected, which in its most radical form consists of protein or lactic acid milk, curds, meat, cheese and gelatin. This procedure has been employed in seven cases with a satisfying recovery in all. In three of these the normal height has not yet been reached, but with their present rapid rate of growth we anticipate this will soon be attained. A strikingly rapid qualitative improvement, as shown by reduction in distension, improvement in vigour and increase of tissue turgor characterised all these cases.

Metabolism findings were obtained in three children. One untreated (B. F—) showed with a small intake large losses in the stools and poor retention of the important constituents, viz. fat, nitrogen and calcium. The second child (J. B—), who on a high protein diet with a larger intake was in the process of recovering, showed also large losses in the stools, but a generally better retention than the untreated case. In his second observation, two years later, he showed very little improvement in chemical findings, except that with a greater fat and potassium intake he had an increased retention.

The third child (H. B—), who at the time of observation was at the beginning of a very rapid improvement, showed on this high protein diet with a good intake small losses in his stools and an extraordinarily good retention of everything.

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THE SEVERE BLOOD DISEASES OF CHILDHOOD: A SERIES OF OBSERVATIONS FROM THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

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PART II.—LEUKÆMIA.

Introductory remarks.—The leukæmic group, as our series of cases clearly illustrates, once more brings us to some of the most difficult problems in the study and classification of blood diseases. Any sharp clinical distinction between myeloid and lymphocytic leukæmia in childhood becomes impossible, and, further, there are unusual examples in which the resemblance to cases in the group of anæmia gravis (aplastic anæmia) and purpura hæmorrhagica is clinically very close.

One point we lay particular emphasis upon is the dissimilarity of the picture of our cases of lymphocytic leukæmia to that which many may have gathered from descriptions in the text-books.

The most severe of them have shown little or no lymphatic enlargement, and the spleen may not be felt, or at the most be detected just below the costal arch.

We are naturally led to ask ourselves what position the lymphatic structures take in this disease. Are they a primary factor sharing this

with the marrow or are they only involved as a secondary event, and the bone-marrow entirely responsible for the disorder?

The pathological examinations of our cases inclines us, on the whole, to the view that the changes in the lymphoid tissues are the result of the primary damage to the bone-marrow, but the decision on this point is a very difficult one.

Another difficult point arises in the differential white cell count. What percentage of lymphocytes, it might be asked, is a test of lymphatic leukaemia? For example, the relative proportion of lymphocytes may also be high in anæmia gravis (aplastic anæmia). In one case of this kind the relative proportions of lymphocytes in the three counts were 62 per cent., 70 per cent. and 32 per cent., and in one of the leukæmic cases it was only 69 per cent. In both diseases we have the evidences of grave anæmia and great illness. Our experience on this point was that the *relative proportion* of lymphocytes tended to fall in anæmia gravis as the illness progressed, but in lymphatic leukæmia it tended to rise, reaching 90 per cent. or over, but this was not invariable. We are, it must be understood, not dealing here with the total number of lymphocytes, but with their relative proportion to other cells in the white group.

It is natural to speculate whether, if we had seen these cases of lymphatic leukæmia earlier in the illnesses, some or all of them would have shown an even lower proportion of lymphocytes than 69 per cent.

At the risk of becoming too elementary in our comments, we would point out here that a great increase in the *total* number of white cells in lymphatic leukæmia in our series *was the exception*. One case showed 123,000 per c.mm., but the majority gave a low count.

This in our experience has proved a great stumbling-block to students who are endeavouring to master the chief facts of the grave anæmias, for we find they associate lymphatic leukæmia with a high count of white cells—for example, 40,000 per c.mm. or over. Yet it is essential to realise that not only may the total count not be increased, but may be much diminished. In other words, lymphatic leukæmia of the most severe kind may be associated with a leucopenia.

Two examples from the series will serve to illustrate this point.

CASE 1.—Boy, aged $7\frac{3}{12}$ years. Gave a white cell count of 100,000 per c.mm., and of these cells 99 per cent. were lymphocytes.

CASE 2.—Boy, aged $7\frac{8}{12}$ years. Gave a white cell count of 3200. The lymphocytes were 85 per cent.

Both these cases died in hospital, and showed in their organs the characteristic lymphocytic infiltrations.

It is to these cases, of which the second example is a type—that is, cases with a leucopenia—that the term leukanæmia, or aleukæmic leukæmia,

has been given, and the essential point in such cases is that *of the small total count of white blood cells, the vast majority are lymphocytes.*

We found that this type was much the more frequent in this series, for, of the total number of twelve cases of acute lymphatic leukæmia, eight fell under this description.

A very brief analysis of the cases of leukæmia will show the variations in the characters of the white cell counts, and assist in making clear the phases of this most mysterious disease.

Four cases were examples of acute lymphatic leukæmia, with relatively high white cell counts. Eight were examples of leukanæmia, that is, acute lymphatic leukæmia with low white cell counts. Two cases were examples of acute myeloid leukæmia with numerous myelocytes in the counts. Three were cases resembling lymphatic leukæmia in the high proportion of lymphocytes, but also akin to the myeloid form in the presence of melocytes—a group which may be termed mixed leukæmia.

It is noteworthy that several cases of lymphatic leukanæmia showed on the first examination of the blood an average number of white cells.

Case 2, for example, had in the first count 17,500 white cells per c.mm., but the number fell eventually to 3200 per c.mm.

On the other hand, those cases in the leukæmic series with a high total count died with this high count still present, and when we attempted to distinguish the leukæmic and leukanæmic cases by clinical symptoms other than the blood pictures, we failed to discover any means of differentiation. Both groups were virulent, and showed fever, hæmorrhage and extreme illness. When, again, we studied the morbid anatomy, we found that cases with a low white cell count showed apparently in some examples as much leukæmic infiltration in the organs as those with a high count.

It is then apparent that neither the total white cell count nor the relative proportion of lymphocytes solves the problem of the diagnosis of leukæmia, and we have to seek further assistance in the nature of the lymphocytic cell. The lymphocytic cell in leukæmia may be an abnormal cell unlike the ordinary lymphocyte, and the presence of such abnormalities as increase of size and vacuolation of the protoplasm, which are apparent on microscopic examination, may afford another means of clinching the diagnosis. This important factor in diagnosis unfortunately becomes one of much difficulty when, as in leukanæmia, the number of these aberrant cells are few.

If the microscopic distinctions between the normal lymphocyte and the aberrant one was always distinct and conclusive, it would be an easy matter to distinguish leukæmia from anæmia gravis and purpura hæmorrhagica. We should then put any doubtful case into the leukæmic group by discovering in the blood film the aberrant lymphocyte. If

this cell was present in considerable numbers, the case would be one of lymphocytic leukaemia; if in scanty numbers, one of lymphocytic leukanæmia. In our experience, however, cases occur in which the microscopic distinctions are so slight and so indefinite that we have been left in doubt, and have been obliged to study also the total number of white cells and the relative lymphocyte count.

When we turn to the prognosis of lymphatic leukaemia, there is a point which is worth comment. All the cases were fatal, and the great majority progressed rapidly to the fatal end. Now and again, however, a sudden inexplicable change for the better may occur and the improvement be maintained for a short time; and not only this—more than one such rally may be recorded in the same patient. For example, a boy of 4 years was admitted to hospital in October, 1919, with a history of two months' illness. His blood-state was leukanæmic in type. Five days later he appeared to be dying, and, being an only child, his parents took him home. There he improved remarkably, and maintained the improvement until January, 1920, and then, getting worse, was again admitted on February the 6th. Once more the illness rapidly progressed, and once more he was taken home on February the 28th to die. He, however, survived until April the 4th. Anyone unaware of this possibility of temporary improvement may be led on the one hand to give a prognosis without guarding himself against this ally, and his accuracy in diagnosis be questioned. On the other hand, he may be misled by this improvement in the patient and encourage an unwarranted optimism. A complete blood-count, and in particular the differential blood-count, will show, even during the stage of the rally, a leukæmic character in the white cell count, both total and differential. If these are present, and if, too, the lymphocytic cell is abnormal, there is unfortunately no room for optimism. The fact that such an event as a temporary recovery from a condition of desperate illness can occur is clearly a clinical fact of the greatest interest in the history of leukaemia.

In conclusion, we would once more dwell upon the essential result of this analysis, that there is in children a very important group of cases of acute lymphatic leukaemia, which, from the time they come first under observation, do not show a high white cell count, but, on the contrary, a low one. They, moreover, invariably show a high relative proportion of lymphocytes which may be abnormal in appearance.

A GENERAL ANALYSIS OF THE CASES OF LEUKÆMIA.

In this group there were eighteen cases; fourteen of these were diagnosed as acute lymphatic leukaemia, two as myeloid leukaemia, and two were apparently of a mixed type.

Acute lymphocytic leukæmia.—French writers for clinical purposes have endeavoured to classify the acute lymphatic cases into various groups, such as (1) the bucco-pharyngeal, (2) the hæmorrhagic, (3) the anæmic, (4) the thoracic. Such has its clinical value, but though in our series certain symptoms have been predominant in individual cases, we found that there were so many symptoms in common that there appeared no advantage to be gained by such a classification. In four cases buccal symptoms were the salient ones—in five hæmorrhages and in four anæmia—but pains in the bones and abdomen, a swinging temperature and purpura were also met with repeatedly.

Etiology.—The causation of leukæmia is no more evident in our series than in those reported by other writers. In eight cases there was no clue, the illnesses developing so gradually that their duration was uncertain. In other cases there was some evidence in favour of an infective process. Five gave histories of pleurisy, pneumonia or bronchitis, from which time the children were believed to have failed in health.

In two cases “diphtheria” was the antecedent, and in one a “cold” three weeks before admission. In another case there was an alveolar abscess. We accordingly arrive at the same position as others who have pointed out the occurrence of acute infections preceding a certain proportion of these cases and the mysterious origin of others.

If we make any comment, it would be that we incline on our evidence to the belief that the solution of the problem of leukæmia lies rather in some peculiar reaction to infection than in the existence of some specific infective agent.

It is well known that in suppurative infections there is a polymorphonuclear leucocyte reaction, and also that in some conditions such as whooping-cough, diphtheria, mumps and tuberculosis there may be a mononuclear reaction. Possibly, then, there may be circumstances dependent upon the individual as upon some peculiarity in an infective process which caused a lymphatic or myeloid reaction, and it may be that there are poisons which are not necessarily of infective origin, which produce the same result.

Age and sex.—The age varied from $1\frac{1}{4}$ years to 12 years. The incidence in the male was striking, ten of the fourteen cases being males.

Duration and symptoms.—The average duration before admission to hospital was two months, the shortest three weeks, the longest eight months.

In sharp contrast was the short duration of the illness after admission, pointing clearly to the fact that before the parents were thoroughly alarmed the last phase of the disease had been reached.

Among the leading symptoms were the following: (1) Pallor. This

was constant, and was described in some cases as waxy; in others as icteric, or even yellow. In one case the face was puffy and there was some general œdema, leading to the child being treated for "dropsy." (2) Lassitude and weakness were frequent. (3) In at least five cases pains in the bones and abdomen were present, and in some instances had led to the diagnosis of rheumatism. These symptoms were, however, entirely lacking in other cases. (4) Breathlessness and palpitation: these symptoms were entirely associated with the anæmia. (5) Fever. (6) In four cases bleeding had occurred before admission, and in others this appeared in hospital. In the worst cases this symptom developed as a continual oozing. Bleeding from the gums, purpura and ecchymosis, epistaxis and melæna were recorded. Retinal hæmorrhages were found in two cases. (7) Wasting was not a prominent symptom, but occurred in some of the cases associated with vomiting. (8) A septic condition of the mouth, and a diphtheroid membrane on the tonsils, with foul breath and ulceration of the gums, were prominent symptoms in four cases, reaching in two to the development of cancrum oris. (9) In four cases a large abdomen attracted attention. (10) The heart was rapid in action and there was usually a basal systolic murmur. In some instances, when the anæmia was very profound, the abrupt first sound could be mistaken for evidence of mitral stenosis, and occasionally a diastolic murmur appeared over the pulmonary cartilage. These physical signs are of practical importance in the diagnosis of acute lymphatic leukæmia from virulent rheumatism or malignant endocarditis. (11) In these cases the spleen was as a rule enlarged, but not invariably. It must be emphasised that in some instances—and these may be rapidly fatal cases—the spleen can hardly be felt just below the costal margin, or may never be felt at all. In other cases it extends some distance below the ribs, but in no instance did it reach very large dimensions. One was recorded after death as weighing 12 oz. In four cases it was never felt during life. (12) The liver also showed variation in size. In three cases it was not enlarged, in two it reached the umbilicus, and in the remainder it was easily felt. In all cases the enlargement was smooth and not tender. (13) The lymphatic glands were as a rule not enlarged. In one case the cervical glands were definitely increased in size, and the necropsy in one case showed a general enlargement of the internal glands moderate in degree, and great enlargement of the retro-peritoneal glands in another. This absence of enlargement in the series is an interesting clinical fact, and, in the light of the usual teaching upon lymphatic leukæmia, an unexpected one.

The kidneys, though sometimes found enlarged at necropsy, gave no clinical assistance in the cases under our care.

Blood.—Reviewing the clinical picture, apart from the blood examination, we are struck by the negative features in lymphatic leukæmia. In most cases we were led to suspect grave illness from the extreme anæmia, purpura, fever, and slight but definite splenic enlargement, this symptom in some being associated with a septic condition of the tonsils and buccal cavity.

It is not to be wondered at that mistakes in diagnosis should be made, such, for example, as rheumatism and heart disease, malignant endocarditis, scurvy and simple anæmia.

Although the morphology of the blood would appear to have reached the limit of its usefulness in throwing light on the nature and treatment of leukæmia, there is no doubt that in diagnosis it has the greatest value to the clinician. In these fourteen cases of lymphatic leukæmia we find that in twelve cases there was in the differential white count a percentage of lymphocytes exceeding 80 per cent. In nine of these it reached 90 per cent. and over, the highest limit being 99 per cent., which occurred in two cases.

Thus by the time these children came to hospital the relative proportion of the white cells had altered in all but two cases so extremely as to make the diagnosis at once apparent. But, as we have stated above, many of the children came to the hospital in the terminal stages of this illness, and it remains a matter of speculation what information would have been gleaned from a blood examination at the onset of these symptoms.

The red cells also showed wide differences in the total count in the different cases, varying between such limits as 4,196,000 to 610,000 per c.mm. There was clear evidence that the prognosis became increasingly grave as the red cell count in any individual case diminished.

The total count of the white cells varied between 123,000 per c.mm. and 1800.

There is evidence in our series that this leukanæmia may be a final stage in the illness.

Examples of Lymphocytic Leukæmia.

CASE 1: *Characteristic lymphatic leukæmia with high count.*—Boy, aged 7 $\frac{1}{2}$ years, was admitted on August the 15th, 1921, for a swollen stomach and enlarged cervical glands. He was one of four children, the others being healthy. Except for measles, chickenpox and a doubtful attack of whooping-cough at three years of age he had enjoyed good health.

In November, 1920, he was noticed to be pale, and later the cervical glands enlarged. In February, 1921, removal of the tonsils and adenoids produced no improvement. The pallor increased, and in March there was œdema of the extremities, in May epistaxis, and again in July a severe attack of nose-bleeding.

He was a pale child with a small hæmorrhage on the nose. The heart was rapid, with

a basal systolic murmur. The liver reached to the umbilicus and the spleen to the same level. The cervical axillary and inguinal glands were enlarged.

The blood examination showed: Red blood cells, 3,200,000 per c.mm.; white blood cells, 100,000 per c.mm.; hæmoglobin, 30 per cent.; lymphocytes, 99 per cent.; colour index, 0·5.

The temperature was raised and swinging, and the course rapidly downhill. Retinal hæmorrhages were present. Death occurred on September the 5th, 1921.

Necropsy.—Enlarged cervical and bronchial glands.

The liver weighed 3 lb., was pale and negative to the Prussian blue reaction.

The spleen weighed 7 oz., and was soft and of the characteristic pink and white appearance.

The bone-marrow showed the same changes in colour and consistence.

The kidneys were large and showed subserous hæmorrhages, and also hæmorrhages into the kidney substance.

There were numerous subserous petechiæ in the lungs and heart. The lymphoid tissue of the intestines was enlarged, as also the mesenteric glands.

Microscopy showed lymphocytic infiltrations in the liver, kidneys, spleen and cervical glands.

Characteristic Case of Leukanæmic Type.

CASE 2.—Boy, aged 7½ years. Was admitted to hospital under Dr. Poynton on August the 9th, 1920, for swelling of the face, a septic mouth, and purpura of seven days' duration.

There was no unusual point in the family or personal history. In July he was operated upon and his tonsils removed. Hæmorrhage followed, for which he was detained in the country hospital for five weeks. The next point in the history was the development of toothache, attributed to disease of first molar on the right side. This was removed four days before admission, and was at once followed by swelling of the right cheek.

On admission he was pale and very ill. There was much swelling of the right cheek, which was covered with slough on the inner side, and the tongue was very coated and breath foul. All over the body there were petechiæ. The heart was rapid and hæmic murmurs were audible. Neither spleen nor liver could be felt. The temperature was high and swinging. The first blood-count showed: Red blood cells, 2,550,000 per c.mm.; white blood cells, 2400; hæmoglobin, 40 per cent.; polymorphonuclears, 10 per cent.; colour index, 0·8; lymphocytes, 90 per cent.

The fragility of the red cells was normal. The action of the serum on the blood-corpuscles of a normal subject was definitely hæmolytic. Cultures from the blood during life were sterile.

Course of the disease.—For a time there was decided improvement, both general and in the blood, in which the proportion of lymphocytes fell from 90 to 63. Then on October the 6th a rapid change for the worse occurred, with vomiting of blood and retinal hæmorrhages, and general oozing of blood from the mouth and nose. Death occurred on October the 10th. Throughout the white cell count showed a definite leucopenia.

Necropsy.—Numerous subserous petechiæ.

Liver, 27 oz., pale; spleen, 3 oz.; kidneys, 3 oz., pale; the bone-marrow appeared normal. The microscopy showed very slight but definite lymphocytic infiltration in the liver and kidneys.

A Case Showing the Development of Lymphocytic Leukanæmia.

CASE 3.—Boy, aged 7½ years. Admitted to hospital under Dr. Poynton, September the 6th, 1920; died October the 13th, 1920.

Eight months before admission he had an attack of pneumonia, since when he had

never recovered his health. For two months he had complained of listlessness and pains in the limbs, and had become very pale.

On admission he was very anæmic and there were large purple bruises on his legs. The liver was easily felt below the costal arch, and the spleen just palpable on deep inspiration. There were numerous retinal hæmorrhages. The lymphatic glands were not enlarged.

The course of the illness was steadily progressive, with numerous hæmorrhages, swinging temperature and rapidly increasing anæmia.

The first blood-count was as follows: Red blood cells, 2,160,000 per c.mm.; white cells, 17,200 per c.mm.; hæmoglobin, 35 per cent.; polymorphonuclears, 1 per cent.; colour index, 0·8; lymphocytes, 99 per cent.

The particular feature in this case was the rapid development of a severe leucopenia, the white cell counts running thus: September the 7th, 17,200; 14th, 12,200; October the 8th, 3800; 12th, 3200 per c.mm.

The red cell count fell to 770,000 per c.mm. and the hæmoglobin to 15 per cent.

The necropsy showed very little. The bone-marrow was dark red and not fluid. In the liver around the portal areas only were visible on section numerous areas of lymphocytic infiltration.

This case in many respects during life resembled an anæmia gravis (aplastic anæmia). The appearance of the bone-marrow and the infiltrations in the liver pointed to a lymphatic leukæmia.

MYELOID LEUKÆMIA.

The two cases of myeloid leukæmia, both infants, showed some remarkable points of differences from the lymphatic group.

The spleen reached an enormous size, and the total count of white blood cells, 400,000 per c.mm., exceeded any met with in the lymphatic cases. Then, again, there were numerous myelocytes and a considerable number of nucleated red blood cells.

The lymphatic glands may be as large, if not larger, than in lymphatic leukæmia. Pathologically perisplenitis was a striking feature, and Leishman's stain showed that in the cellular infiltrations in the viscera there were many myelocytes. The enlarged mesenteric glands were deep red in colour. The diagnostic difficulty in one case was not from lymphocytic leukæmia, but from von Jaksch's anæmia.

It is remarkable that both the cases of myeloid leukæmia were male infants of four months of age. The cases are so striking that we give them in some detail:

CASE 1.—Male infant, aged 4 months. Admitted March the 23rd, 1920, and died April the 6th.

He was admitted under Dr. Poynton for swelling of the abdomen. A breast-fed child, he weighed 12 lb. at two months, since when he had been getting more anæmic and was wasting. Three weeks before admission he had an attack of bronchitis.

He was pale and flabby. The temperature was raised and reached 100° F. The spleen reached the iliac crest and the liver to the umbilicus. There were no enlarged glands.

The blood-count showed: Red blood cells, 3,440,000 per c.mm.; hæmoglobin, 30 per cent.; colour index, 0·4; white cell count, 18,000 per c.mm.; polymorphonuclears, 31 per cent.; lymphocytes, 53 per cent.; myelocytes, 16 per cent.

There were 14 nucleated red cells per 100 white cells.

This case was shown at the Children's Section of the Royal Society of Medicine as a probable example of von Jaksch's anæmia, and the general opinion favoured this view.

On March the 27th another blood-count showed a great change in the condition, for both the total white cell count and myelocyte proportion were rising rapidly, and on April the 4th the white cell count had risen to 145,200 per c.mm. ! Nineteen per cent. of these were myelocytes, and there was a high percentage of nucleated red cells. It should be added that on April the 1st a fifteen minutes' exposure to X rays was given over the splenic area, but the child failed very rapidly with high fever and diarrhoea, and died on April the 6th.

The Wassermann reaction was negative.

A film of the blood sent to Dr. J. S. Fowler, of Edinburgh, was judged by him to be characteristic of an adult myeloid leukæmia.

Necropsy.—Smears and cultures were made from the liver, spleen and heart's blood with negative results. Some Gram-positive cocci were seen in the films of the bone-marrow.

The *spleen* weighed 10½ ozs. There was much perisplenitis, with adhesions to the omentum, abdominal wall and liver.

On section the Malpighian corpuscles were obscured by lymphoid elements.

The *liver* was large and pale, and weighed 14 oz.

The *bone-marrow* was red, soft and gelatinous.

The *mesenteric glands* were much enlarged.

The *kidneys* were very pale, weighed each 1½ oz., and showed in their cortices petechial hæmorrhages.

These were the chief macroscopic changes.

This was a most instructive case in illustrating the extreme rapidity with which the changes in the blood may occur—for in ten days the total white cell count had risen from 18,000 per c.mm. to 145,200, and the myelocyte count from 16 per cent. to 19 per cent.

Such an event naturally suggests the possibility that in acute leukæmia the earliest phases in the blood may be passed through very rapidly, and take us some short step toward the explanation of the fact that so many cases of leukæmia are first under observation in an advanced stage of the disease.

CASE 2.—Male infant, aged 4 months, was admitted on March the 17th, 1921, and died March the 22nd. He had been wasting and vomiting for two months. He was an only child and there had been one previous miscarriage. Two months before admission he had an attack of bronchitis and pneumonia, and he was never well after this. He had been fed on cow's milk and water. On admission the temperature was 99° F. Pallor and petechial hæmorrhages were present. The liver reached the umbilicus, the spleen to the iliac crest. Slightly enlarged glands were felt in the neck, axillæ and groins. There was some change.

The blood-count was as follows: Red corpuscles, 3,120,000 per c.mm.; hæmoglobin, 50 per cent.; colour index, 0·8; normoblasts, 12 per 100 white cells; megaloblasts, 4 per 100 white cells; white blood cells, 401,600 per c.mm.; polymorphonuclears, 63 per cent.; small lymphocytes, 2 per cent.; large lymphocytes, 0·5 per cent.; large mononuclears, 1 per cent.; myelocytes, 25·5 per cent.; transitionals, 8 per cent.

Death occurred five days after admission.

Necropsy.—The *spleen* was large (8 oz. +) and showed much perisplenitis with adherent omentum. It was six inches long and dark red in colour.

The *liver* was pale (weight 10 oz.) and mottled.

The *kidneys* ($1\frac{1}{4}$ oz. each) were pale and studded with small hæmorrhagic areas.

The *lymphatic glands*—the mesenteric glands—were enlarged, dark red and lobulated. Small white areas were visible in their structure.

The *bone-marrow* (of the tibia) dark red and diffuent.

Except in some petechial hæmorrhages in the other viscera and areas of broncho-pneumonia there was no point of particular interest.

Microscopy showed infiltration of the liver, kidney, spleen, thyroid and thymus with myelocytes.

MIXED LEUKÆMIA.

The three examples of this condition are now briefly considered ;

CASE 1.—Boy, aged 10 years, was admitted for multiple glandular swellings.

There was no point of interest in the family history or previous history of the patient, except that he had always been pale. The glands had commenced to enlarge seven weeks before admission, first in the neck, then in the axillæ, and lastly in the groins. There had been epistaxis and recently swelling of the abdomen.

On admission there was pallor, and large masses of glands were visible in the neck, axillæ and groins. The liver was enlarged to the umbilicus and the spleen also much increased in size. The temperature oscillated between 100° F. and 103° . The heart was rapid and there were hæmic systolic murmurs.

The blood-count was as follows : Red blood cells, 2,160,000 per c.mm. ; hæmoglobin, 30 per cent. ; colour index, 0·7 ; nucleated red cells, 3 per 100 white cells ; white blood cells, 440,000 per c.mm. ; polymorphonuclears, 3 per cent. ; lymphocytes, 90 per cent. ; neutrophile myelocytes, 6 per cent. ; transitionals, 1 per cent. The oxydase test was positive.

Purpura and oozing of blood from the mouth and nose were constant, and death occurred five days after admission.

Necropsy.—The *spleen* weighed 23 oz. and was 9 in. by $4\frac{1}{2}$ in. in size. There was perisplenitis and the omentum firmly attached.

The *liver* showed perihepatitis and was adherent to the diaphragm and abdominal wall. Weight, 3 lb. 12 oz.

The *external lymphatic glands* were enlarged and deep red on section. The mesenteric glands were pale.

The *bone-marrow* was mottled, dark red and white, and gelatinous in consistence.

The *kidneys* weighed each $3\frac{3}{4}$ oz. and were pale. Immediately outside each hilum was a layer of soft tissue resembling granulation-tissue or blood-clot.

There were numerous subserous petechiæ throughout the body.

Sections of the viscera showed infiltration with lymphocytic cells.

CASE 2.—Boy, aged $8\frac{1}{2}$ years, was admitted to hospital on June the 30th, 1921, and died on July the 6th.

An only child, always pale, three weeks before admission he had suffered from a "cold," and was feverish and languid.

On admission he was very ill and pale yellow in colour. The temperature was 101° F. The cervical, axillary and inguinal glands were palpable. The spleen was felt a finger's breadth below the costal arch ; the liver extended an inch downwards.

The heart was rapid and there was a basal systolic murmur.

There were bronchitic signs in the chest, and later pleural friction. Albumen appeared in the urine and blood in the stools. Pupura developed while in hospital.

The blood-count was as follows : Red blood cells, 2,384,000 ; hæmoglobin, 32 per cent. ; colour index, 0·6 ; white blood cells, 244,000 ; polymorphonuclears, 5 per cent. ;

lymphocytes, 87 per cent.; myelocytes, 7 per cent.; nucleated red blood cells, 8 per 100 white cells. The oxydase reaction was positive.

Necropsy.—The *spleen* weighed $4\frac{1}{2}$ oz., was firm and red and showed some perisplenitis.

The *liver* weighed 2 lb. 5 oz. and was pale fatty.

The *lymphatic glands* were slightly enlarged, and there was one tubercular caseous gland in the mesentery.

The *bone-marrow* was cream pink in colour.

The *kidneys* weighed each $1\frac{1}{2}$ oz., were pale, and showed hæmorrhagic nodules of lymphatic infiltration.

The *lungs* showed broncho-pneumonia, and there was some pleurisy.

Microscopically typical leukæmic changes were seen.

CASE 3.—Male infant, aged $1\frac{1}{2}$ years, was admitted to hospital on June the 8th, 1921, and died on the 17th.

An only child, he was admitted for swelling of the abdomen, chronic diarrhoea and increasing weakness. At Easter he had an attack of bronchitis, from which the swelling of the abdomen was dated.

A pale child, with the spleen and liver enlarged to the umbilicus. The temperature remained normal. After admission purpura appeared on the forehead and back.

The blood-count was as follows: Red blood cells, 3,336,000 per c.mm.; hæmoglobin, 35 per cent.; colour index, 0·5; nucleated red cells—normoblasts 320 per c.mm., megaloblasts, 64 per c.mm.; white cells, 12,800 per c.mm.; polymorphonuclears, 18 per cent.; lymphocytes, 74 per cent.; myelocytes, 3·5 per cent.; Eosinophils, 1 per cent.; basophils, 2 per cent.; transitionals, 1·5 per cent.

The course of the illness was rapid, and death occurred ten days later.

Necropsy.—The *spleen* weighed $12\frac{3}{4}$ oz. and was purple in colour. There was no perisplenitis.

The *liver* weighed 2 lb. 7 oz., was pale, and showed numerous small hæmorrhagic points throughout.

The *lymphatic glands* were not enlarged. The *bone-marrow* was redder than normal. The *kidneys* were enlarged, weighing 9 oz. each, and were pale, with subserous petechiæ scattered over the surfaces.

There was no other point of interest.

Microscopical examination of the above organs showed in all an intense infiltration with leucocytes, these cells being present in large numbers in the bone-marrow.

These three cases are of particular interest in their bearing upon the whole problem of the relation of classical myeloid and lymphocytic leukæmia to one another.

In Case 1 there are a high total white cell count, the presence of 6 per cent. of myelocytes and 3 per cent. of nucleated red blood cells, which differentiated it from the lymphocytic leukæmia. There was also perisplenitis. On the other hand, the percentage of lymphocytes was 90. These cells stained in the same way as those in acute lymphocytic leukæmia, but they were vacuolated and less defined in structure. Clearly such a case would be classified by some authorities as an acute myeloblastic leukæmia, but to us the distinction from a combination of both forms seems one of extreme difficulty.

Case 2 presented essentially the same problems for consideration.

Case 3 would seem to show an even less differentiated blood picture. In this case the total white cell count was only 12,800 per c.mm. and the myelocytes 3·5 per cent., and there was no perisplenitis. The relative lymphocyte count was 74 per cent. There were, however, nucleated red cells and the spleen was enlarged to the umbilicus.

Of all the cases this in some respects most closely resembled the myeloid leukæmia in an infant of 4 months, when in the stage at which it was diagnosed as a von Jaksch's anæmia.

It is remarkable how rapidly this case died, for the picture of the blood-count, though serious enough, did not suggest any peculiar virulence.

THE CHLOROTIC TYPE OF ANÆMIA IN CHILDREN.

Chlorosis is by definition a disease of young women at or shortly after the period of puberty, and the cause is unknown. It is an old dispute whether or not the disease can be said to occur in the other sex or in children before the age of puberty; but it is an academical rather than a practical controversy, since it is not disputed that an anæmia resembling chlorosis in the alterations of the blood corpuscles and the hæmoglobin is a common affection at all ages of life. We have, therefore, described these cases as anæmia of the chlorotic type.

Probably the most common underlying cause of such anæmia is rickets, and it is interesting to find that a disease, which is essentially a disease of nutrition, appears to have the same effect upon the production of blood as chlorosis. At the same time it must be pointed out that there is an abundance of other cases of anæmia of the chlorotic type in patients who show no signs of rickets, who are indeed long past the age at which rickets is an active factor in health. The anæmia of children of school age, which is apparently the outcome of a combination of many factors—ill-chosen food, defective ventilation, defective light, latent infections of the nose and throat, want of the proper amount of sleep, and possibly over-work, either mental or physical—often assumes precisely the characters of a chlorotic anæmia, and with the correction or elimination of these factors is benefited rapidly by the administration of iron. Nothing is more striking than the rapid return to health of such patients when, removed from their previous environment, they react to iron.

There is, however, a further question of some interest. If such patients, for whatever reason, are unable to receive appropriate treatment, do they pass on to the more severe and irremediable conditions of anæmia gravis or leukæmia; or in the case of infants to that anæmia with splenomegaly known as von Jaksch's pseudo-leukæmia infantum; or, again, is such an anæmia the precursor of such diseases as lymphadenoma or Banti's form of splenic anæmia? To all these questions the answer

is, we think, in the negative. With regard to lymphadenoma, Banti's form of splenic anæmia and leukæmia there is little or no evidence that the disease begins with any disturbance of the hæmo-poietic function; the alterations in the blood appear to be either characteristic as in the leukæmias, or even absent as in lymphadenoma in its early stages and not tending to assume the chlorotic type at any stage.

In regard to von Jacksch's anæmia, the evidence is to our minds no less convincing though of a somewhat different character; the infants who suffer from this disease have never been observed to pass from the simpler type of anæmia to the characteristic anæmia of the disease, and it is one of the remarkable features of the disorder that it almost invariably appears to the physician "full-fledged," so to speak, without any preliminary stage; the infant when first seen is already the possessor of an enormous spleen and of a marked myelocytosis.

The remaining question, whether the ordinary type of "school-age" anæmia with its "chlorotic" character may be a precursor of the severe and often fatal anæmia gravis is more difficult. Now and then the statement is made that the child has always been pale; much more often the onset of pallor, breathlessness and general failure has been sudden in a child who has previously enjoyed good health and been of a natural colour. On the other hand, some of these severe anæmias when treated with iron and arsenic react rapidly and satisfactorily, and climb back to health with the apparent ease of the "chlorotic" anæmia, suggesting that the factors, whatever they are which produce the "chlorotic" type, are the same which are concerned with the graver form.

The following is an example of a characteristic case of this type:

Girl, aged 2½ years. Admitted under Dr. Still on October the 5th, 1920.

She was admitted for anæmia, and there was a history of tuberculosis in the family. She had been breast-fed for four weeks. She was quite well until six weeks before, when she fell on her face, damaging an eye and her nose. From that date she gradually became paler and more short of breath. She seemed to have attacks of colicky pain on the left side. She presented an appearance of waxy pallor, but there was no wasting and no evidence of rickets. The liver and spleen were both enlarged and felt below the costal arch. The heart was rapid, the sounds were short, and there was a hæmic basal murmur systolic in time. The lymphatic glands were palpable. The other symptoms showed nothing of importance. The temperature on admission was 100, but became normal after a few days in hospital.

The first blood-count, on October the 6th, 1920, showed: Red cells, 2,250,000; hæmoglobin, 20 per cent.; colour index, 0·4; white cells, 8600. Differential count: Polymorphs, 68 per cent.; small lymphocytes, 20 per cent.; large lymphocytes, 7 per cent.; large mononuclears, 1 per cent.; basophils, 1 per cent.; transitionals, 1 per cent.; megaloblasts, 2 per cent.

The child was treated with iron and arsenic, and three weeks later the red count had risen to 4,160,000, the hæmoglobin to 44 per cent., and the colour index to 0·53.

The change in the child was remarkable, the waxy pallor being replaced on the cheeks by a healthy pink colour.

Another striking case was that of a girl, aged $2\frac{1}{4}$ years, who was admitted under Dr. Hutchison on May the 5th, 1921, for severe anæmia with a large liver and spleen. The blood-count showed 4,926,000 red cells, hæmoglobin 35 per cent., colour index 0·3. She was treated with 15-gr. doses of pulv. ferri carb. sacch., and four months later the red cells had risen to 5,260,000, the hæmoglobin to 50 per cent., and the colour index to 0·6. The change in the child was equally striking.

LYMPHADENOMA.

There were five examples of this condition, and it is apparently a rare disease as compared with leukæmia, to judge by the number of cases admitted to the hospital. Four of the cases were boys, and were aged between ten and twelve years; one was a girl of nine months.

In three of the cases there was a previous history of measles and whooping-cough; in one a family history of tuberculosis.

In three cases the first symptom to attract attention was enlargement of the cervical glands. In one there was an attack of abdominal pain, and in the remaining case weakness, fever and wasting had led to the diagnosis of tuberculosis.

Enlargement of the spleen occurred in four cases and in one instance it reached to the umbilicus. Jaundice probably from mechanical pressure was present in two cases. Wasting was a prominent feature, contrasting in this respect with leukæmia. The lymphatic glands were much enlarged in the neck in three cases, and in these to a lesser degree also in the axillæ and groins. In one the popliteal glands were enlarged. In two the abdominal glands were the first to increase in size, and with them the inguinal glands. In these the cervical and axillary groups showed very little change. The glands were discrete and soft in the acute phase, firmer in the more chronic. There was no matting.

The fever was of two types—the continuous and intermittent. There was no example of the remittent type.

Pressure symptoms occurred late in the illnesses.

The blood picture was that of a moderate secondary anæmia passing later into a severe phase. In two cases the white count was in one normal, in the other increased, whereas in three where the disease was well advanced there was a leucopenia.

The microscopic pathology of the glands in the acute cases showed many epithelioid and lymphadenoma giant-cells. In the more chronic cases there was much fibrous tissue formation, obscuring the lymphoid elements.

In the spleen much the same picture was presented, with the occurrence of numerous epithelioid and lymphadenoma giant-cells. In advanced

cases no splenic tissue remained. In the liver deposits of epithelioid cells could be seen around the portal spaces. These deposits superficially resembled leukæmic infiltrations, but careful examination showed the epithelioid character of the cells.

The differential diagnosis.—(1) Tuberculosis of the glands is usually associated with matting of the glands and irregular fever, and the splenic enlargement is absent. We did not meet during our period of observation with one of the unusual examples of glandular tuberculosis with intermittent fever, which resemble lymphadenoma so closely as to necessitate excision and examination of a gland to decide the diagnosis.

(2) Leukæmia is excluded by the blood picture.

(3) Rare cases of congenital syphilis with general glandular enlargement and gummata in the spleen and liver may clinically bear a most striking resemblance to lymphadenoma, but the Wassermann reaction serves to exclude this condition.

(4) Another very rare condition is a general glandular septicæmia in which there is enlargement of the spleen. In such cases some of the glands break down and form abscesses, and excision and examination of one of them will show an absence of the characteristics of lymphadenoma.

(5) Miliary tuberculosis and typhoid fever may simulate lymphadenoma of the acute abdominal type. The rapid course of the one and the Widal reaction in the other are points of distinction, and in the majority of cases a general clinical review gives other data.

(6) Lymphosarcoma is more localised and rarely shows enlargement of the spleen and the fever of lymphadenoma.

An Example of the Abdominal Type of Lymphadenoma.

A boy was admitted to hospital on December the 14th, 1920, when aged 11 years. The child had been ailing for four months, and had been diagnosed as pulmonary tuberculosis at a tuberculosis dispensary. He was an only child. He had previously had measles and whooping-cough at three years of age.

On admission he was well grown, but rather pale. He had two carious teeth. There were signs of bronchitis present and the abdomen was full. The spleen was just palpable and the sclerotics had a faint jaundiced tint. There were two enlarged glands in the neck.

While in hospital the child had recurring attacks of prexia. The temperature rose in a step-ladder fashion to 104° F., remained there for a week, and then slowly subsided, the whole process taking about a fortnight.

These intermittent attacks of pyrexia recurred at irregular intervals, one attack following immediately on another, or there might be an interval of several days or weeks.

During the pyrexial periods the child felt ill, went off his food, grew visibly paler, his spleen enlarged, and he lost flesh, the abdomen became full and tumid. It was during this stage of the disease that the diagnosis of typhoid fever might be made.

During the apyrexial periods the child distinctly improved, and the glandular and splenic enlargements subsided.

A gland in the neck was excised. Pathologists differed widely in the diagnosis, but the majority leaned towards lymphadenoma.

Gradually his condition grew worse, and in the intermissions he failed to make up the ground lost during the periods of fever. He had a sharp attack of epistaxis. Œdema of the lungs developed and his heart failed, and he died on July the 25th, 1921. His blood picture on admission showed nearly five million red cells, with 85 per cent. hæmoglobin, and 4800 white cells of normal proportions. A month later his red cells were four millions, 70 per cent. hæmoglobin, with 3400 white cells. The count fell continually, until three weeks before he died it showed two million red cells, 2600 white cells, of which 57 per cent. were polymorphs, hæmoglobin 28 per cent.

Necropsy.—The abdomen was distended. There was no enlargement of the cervical glands. The bronchial glands were enlarged and some were pigmented. The lungs were cedematous—a little fluid present in the pleura and pericardium. The heart weighed 6½ oz., was pale, showed tabby-cat markings, with petechial hæmorrhages beneath the endocardium. Three ounces of fluid were present in the abdominal cavity. The liver was large, 44 oz., yellow suet-like bodies were present; the spleen weighed 25 oz., and measured 10 in. by 5 in. by 3 in. It was soft, and the surface was scarred and raised in areas like infarcts—not a typical hard-baked spleen. On section it was more characteristic. The kidneys weighed 5 oz. and were pale. A definitely caseous tuberculous gland was present in the mesentery. The glands about the hilum of the liver and pancreas were enlarged. Microscopically the liver and spleen were typical of lymphadenoma, so also the glands. The kidneys showed no lymphadenomatous infiltration.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, January the 27th, 1922.

The President, Sir ROBERT JONES, K.B.E., in the Chair.

Abnormal Adiposity following Meningitis.—MR. A. LEVISEUR.—The patient, a girl, now aged 2½ years, was admitted to hospital aged 5 months, suffering clinically from meningococcal meningitis, which had commenced ten weeks previously. No meningococci were found in the cerebro-spinal fluid. Energetic treatment by antimeningococcal serum intrathecally and intravenously. To-day, two years after the onset, she presented the appearance of a woman of 40 rather than that of a child. There was an abnormal deposit of subcutaneous fat all over the body, most marked in the region of the breasts and thighs. She had never learnt to walk properly owing to defective co-ordination. Though her head was two inches larger than usual in a child of her age, she appeared intelligent and bright. A skiagram of the skull showed no bony abnormality in the region of the pituitary gland. After administration of 50 grm. of glucose no sugar was found in the urine. The interesting points in the case were the extraordinary fatness of the child and the good recovery after meningococcal meningitis.

Defective Ossification of Skull.—DR. E. A. COCKAYNE showed a child, aged 5 years and 8 months. There was a considerable interval between the two halves of the frontal bone, between the frontal and parietal bones, and

between the two parietal bones. The edges of the bones were slightly raised. The anterior, posterior and lateral fontanelles were all open. X rays showed bones of uniform and normal thickness. The head was well shaped and of average size (20 in.). The clavicles were normal. There was no history of fracture, and the long bones were not deformed. A large vein ran from the base of the nose upwards along the course of the frontal suture. On coughing the apex of the right lung bulged above the clavicle. The condition might be an incomplete form of cleido-cranial dysostosis. The clavicular defect in this disease was very variable and sometimes only unilateral.

Case for Diagnosis.—Dr. E. BELLINGHAM SMITH showed a boy, aged $4\frac{1}{2}$ years, in whom the diagnosis seemed to rest between a case of Hirschsprung's disease associated with chronic bronchitis and emphysema and some form of chronic tuberculous infection.

Specimen of Teratoma.—Dr. E. BELLINGHAM SMITH and Mr. E. A. SHAW.—The specimen was from an infant, aged $3\frac{1}{2}$ months, who was admitted to hospital for progressive enlargement of the abdomen. There was a large tumour filling the whole of the left loin and projecting forward and inwardly so as almost completely to occupy the whole of the left side of the abdominal cavity. The child was breast-fed and there were no symptoms beyond enlargement of the abdomen. Four days after admission the temperature rose suddenly to 104° F. and the child became seriously ill, with vomiting and green stools. Drowsiness and coma supervened, and the child died in three days. Post mortem the teratoma was found occupying the upper half of the left side of the abdominal cavity, and intimately adherent to the stomach, spleen and left lobe of the liver. The specimen showed solid and necrotic areas, and at the upper side on its anterior aspect communicated directly with what appeared to be a large—1 in. by 1 in.—ulcer in the stomach. The edges of the ulcer were healed and smooth. Sections from the tumour showed skin, hair-follicles, connective tissue, muscle, cartilage, lymphoid tissue, etc.

February the 24th, 1922.

The President, Sir ROBERT JONES, K.B.E., in the Chair.

(?) **Congenital Mitral Stenosis.**—Dr. B. T. PARSONS-SMITH showed a boy, aged 15 years, who was undersized, delicate-looking, poor in physique and general development, weight 5 st. Mentality about the average. No previous history of illness. Present condition:—Symptoms: Breathlessness on going up stairs and cough on exertion. Physical signs: Throat healthy, heart enlarged, præcordium prominent, engorgement of superficial veins of upper thorax, heart rhythm regular but fast, presystolic thrill at apex, loud first sound and systolic shock, pulmonary second sound accentuated, vessels normal, blood-pressure 130 mm. systolic, 85 mm. diastolic, no jugular or visceral stasis. The electro-cardiogram showed a regular heart-beat at 120. The individual complexes were composed of the normal series of waves in normal sequence; the auricular wave was unduly prominent and at times bifid. The P.R. interval varied from 0.18 to 0.20 seconds; right ventricular preponderance was well displayed.

Case for Diagnosis.—Dr. B. T. PARSONS-SMITH also showed a boy, aged 11 years, who had suffered from palpitation as long as he could

remember, and shortness of breath on exertion. He had had a slight attack of measles at 3, and when examined by the school doctor at $4\frac{1}{2}$ was certified to be suffering from heart disease. Present condition: General development poor. Slightly prominent præcordium. Heart enlarged; apex beat fifth space, $3\frac{3}{4}$ in. from mid-sternal line; rhythm regular; systolic and harsh diastolic murmurs at aortic base, second sound accentuated at base of heart, vessels not thickened. Pulse regular. Blood-pressure—systolic 125, diastolic 70. No venous engorgement. The electro-cardiogram was normal. There was no suggestion of left ventricular preponderance. Orthodiagraphic record indicated exaggerated pulsation and width of aortic shadow. The question was whether he had acquired damage, or whether it was a congenital lesion, such as deficiency of aortic cusps or deficiency of the septum dividing the truncus arteriosus in the process of development.

Arthritis of Both Hips.—MR. B. WHITCHURCH HOWELL showed a case in a boy, aged 4 years.

Complete Transposition of Viscera with Congenital Heart Disease.—DR. E. A. COCKAYNE showed a female child, aged 2 years, with marked cyanosis and clubbing of fingers and toes. Heart enlarged. Systolic thrill and murmur at right base. Electro-cardiogram showed in Lead 1 inversion of all the waves. The heart lesion was regarded as pulmonary stenosis and there was perhaps patent septum ventriculorum as well. Complete transposition of viscera was proved by screen examination with X rays.

Congenital Aortic Stenosis with Superimposed Rheumatic Infection.—DR. E. BELLINGHAM SMITH showed a boy, aged $15\frac{1}{2}$ years, who had been brought to hospital for breathlessness. He had always been delicate, and was known to have had "heart disease" since the age of 3 years. At 8 years of age he was admitted to hospital for rheumatic fever. On examination the child was ill-developed, anæmic and breathless even at rest. The heart was enlarged, the cardiac dulness extending some 2 in. outside the nipple line. The left side of the chest was prominent and there was a marked heavy impulse. At the base over the aortic area there was a distinct purring systolic thrill, and associated with it was a harsh loud systolic murmur conducted up to the right clavicle and into the vessels of the neck. The second aortic sound was absent. At the apex separate systolic and diastolic murmurs were heard, suggesting an acquired mitral stenosis.

Case of ? Dyspituitarism, ? Hypernephroma.—DR. E. BELLINGHAM SMITH showed a youth, aged 19 years, admitted to hospital for pain in the sides, back and hips. He had always been short and fat. On examination he was very stunted and obese with a bloated and plethoric countenance. The genitals were infantile. The voice was high-pitched and shrill. The urine contained 6.5 per cent. of sugar on his ordinary diet. Systolic blood-pressure 2.18 mm. A skiagram showed little or no change in the region of the sella turcica. Although the sexual infantilism and obesity suggested Frölich's syndrome, this diagnosis was negated by the presence of glycosuria. Against the diagnosis of cortical suprarenal tumour was the long duration of the condition and absence of sexual precocity. On the other hand, the plethoric countenance, obesity and glycosuria and possibly the widely dilated pupils were of suprarenal origin. Possibly some general

atrophic condition of his pituitary gland might explain the condition. Extract of the whole gland was therefore being given.

Tonic and Hypertonic Hearts in Children.—Drs. C. P. LAPAGE and W. J. S. BYTHELL showed skiagrams of abnormal conditions of the heart in children. Apart from valvular disease, two abnormal conditions were shown to occur—(1) hypertonia, (2) atonia. Physical tests on children who had tic or habit-spasm, tachycardia and nervous emotional symptoms had suggested the existence of a condition of over-action and over-contraction of the heart. X-ray examination of these cases showed that the heart was in a condition of hypertonia, *i. e.* screen examinations made from back to front showed the lateral diameter to be decreased at the base and the vertical diameter to be increased. The natural convexity of the heart to the left tended to be obliterated. The hypertonic condition was easy to recognise by X-ray examination. The results of physical examination made by percussion and auscultation, and also by special tests, which brought the question of emotion, of exercise and of intrathoracic pressure into play, were correlated with X-ray examination in a series of 100 cases. The results were substantially in agreement. The value of X-ray examination in estimating the degree of atonia was also demonstrated. Certain hearts which were hypertonic at the first examination became atonic while under observation as the result of some toxæmic condition, such as tuberculosis, rheumatism or chorea.

CLINICAL SECTION.

May the 12th, 1922.

Recurring Thyroiditis without other Disturbances.—Mr. E. ROCK CARLING showed a girl, aged 7 years, admitted to hospital in July, 1921, with a much enlarged thyroid in which there were four specially hard masses. No other abnormality was detected, and the swelling of the gland subsided spontaneously. In October, 1921, February, 1922, and May, 1922, she was readmitted to hospital, on each occasion with a similar condition. Her weight in July, 1921, was 2 st. 13 lb., in May, 1922, 3 st. 5 lb.

Case of Enlarged Liver.—Dr. J. WALTER CARE showed a boy, aged 12 years, who was in good health until about 7 months ago, when he began to suffer from attacks of pain in the epigastrium (not related to food), with nausea and occasional vomiting. Two or three months ago a swelling was first noticed in the upper part of his abdomen. He continued to go to school until two or three days before admission to hospital on March the 27th. His appetite had been very large. He had never been abroad. The abdominal swelling was due to a greatly enlarged liver reaching from the 5th rib above nearly to the umbilicus. The edge was sharp, the surface smooth and not tender. There was no ascites and there had never been any jaundice. When the boy was first seen his spleen was distinctly palpable below the costal margin, but it had diminished in size and could now only just be felt. There was no enlargement of the external lymphatic glands. Wassermann reaction on blood negative. The chief feature of the blood examination was a definite leucopenia.

Sarcoma of Femur.—MR. H. TYRRELL GRAY and MR. B. SANGSTER SIMMONDS.—The patient was a boy, aged 7 years, admitted to hospital on April the 28th, 1922, complaining of pain in the right thigh, worse at night, of continuous nature, dull and aching in character and of three months' duration. He limped on walking. Wassermann reaction negative. Investigation showed fusiform swelling of shaft of right femur in its middle, very tender on pressure. Operation May the 10th. Resection of sarcoma of femur; fibula graft. X-ray examination showed absorption of about 1 in. of middle of shaft of femur, this area being surrounded by a fusiform sheath of compact bone interrupted at one spot.

SECTION OF DERMATOLOGY.

March the 16th, 1922.

Hydroa aestivale.—DR. J. M. H. MACLEOD showed a typical case in a girl, aged 11 years, who had had the eruption during the summer weather for the last five years. The type of lesion was intermediate between the lesions of the summer prurigo type of Hutchinson and the more vacciniform type described by Bazin. They consisted of dusky conical papules, about half the size of a lentil, and occasional small vesicles, some of which became secondarily infected by scratching. These, when shrivelled, formed a small scale, which on separating left a pitted scar. They were present in the usual situations, viz. the back of the hands and wrists, the face and ears, and were absent on the neck and the covered parts of the body. The individual lesions healed up in a few days, but the condition was rendered permanent by the successive crops of papules. The lesions usually appeared about the spring and lasted well on until the end of the autumn. Their occurrence in a girl was of interest, owing to the old idea that they usually affected boys—an idea not in accordance with Dr. MacLeod's experience. There was little doubt that the actinic rays of the sunlight were responsible, but there were probably other exciting factors, as the eruption was aggravated by wind on a dull day. The type of lesion was somewhat different to that in chronic solar dermatitis, so that probably there was some underlying idiosyncrasy. Treatment had so far been disappointing.

SECTION OF ORTHOPÆDICS.

February the 7th, 1922.

Two Cases of Deformity of the Hip.—MR. R. C. ELMSLIE.—Case 1: Boy, aged 5 years, who had limped from the time of beginning to walk at the age of 18 months. The left lower limb was 1 in. short, the great trochanter being raised; movements of the joint were free. The head of the femur could be felt in its normal situation, but on flexing and adducting the hip it appeared on the dorsum ilii. Trendelenburg's sign positive. X-rays showed a right-angled deformity of the neck, an absence of ossification of the head of the femur, and an enlargement upwards of the acetabulum. It was apparently a case of subluxation of the head of the femur with coxa vara and defective ossification of the head of the bone.

The condition was probably congenital, possibly due to an early arthritis, as the boy had had pneumonia at the age of 4 months, when he had some trouble with the left leg. Case 2: Girl, aged 12 years, with coxa vara of the cervical or adducted type, showing a positive Trendelenburg sign, a diagnosis from congenital dislocation apart from radiographic appearances being very difficult.

Osteochondritis of Head of Femur.—MR. E. LAMING EVANS showed a girl, aged 11 years, who had been treated by hip extension and immobilisation as for tuberculous disease of the hip for $4\frac{1}{2}$ years. All movements of the hip were free. Shortening $\frac{3}{4}$ in. Trochanter raised $\frac{3}{4}$ in. above Nelaton's line. X rays showed flattening and spreading of the capital epiphysis upon the femoral neck. There was a clearly defined centre for the lesser trochanter of increased density suggestive of the radiographic appearance of the tarsal scaphoid in Kohler's disease. The centre of the lesser trochanter on the right side had not yet appeared. It was suggested that the osteo-chondritic affection had exceeded the usual limits and extended to the region of the lesser trochanter.

Recurrent Subluxation of both Knee-joints (Snapping Knees) in a Baby.—MR. H. A. T. FAIRBANK showed a female infant, aged 10 months, who for three months had been noticed to snap the right knee in a semi-flexed position on many occasions. Similar snaps occurred in the left knee on two occasions. Voluntary displacement took place in an outward and slightly forward direction. In semiflexion passive displacement of the tibia was possible, particularly in an outward direction; the tibia slipped back with a snap. No hyper-extension of knees. Other joints normal. It was proposed to treat the case with some simple splint to prevent the child from subluxating the knees and to order massage.

Infantile Monoplegia of Left Leg.—MR. P. JENNER VERRALL showed a girl, aged 14 years, whose disability was said to date from infancy. The question was whether it was a case of an upper motor neuron lesion with secondary degeneration of the lower neuron, or of poliomyelitis and polioencephalitis affecting the same part. Mr. Verrall regarded the former as the more probable, but in the discussion the case was regarded as more likely to be an example of poliomyelitis.

Dislocation of Patella and Contraction of Knee.—MR. H. TYRRELL GRAY showed a girl, aged 5 years, who had had dislocation of the right patella since she began to walk. At first she was able to put it in and out at will, but since the other leg had been in plaster for congenital dislocation of the hip, the right patella had been permanently out. Before being in plaster the child was able to hobble about with a twisting movement of the right knee, but now when she tried to walk she fell down, the knee giving way beneath her. She never complained of pain. She held the foot everted and the knee flexed slightly. There were no deformities in family. There was permanent external dislocation of right patella with the knee-joint in a position of flexion, 120° , and genu valgum. Full extension impossible. Right foot everted with marked external rotation of right tibia at knee-joint; condyles of femur projected forward prominently. Right patella small, lying behind external condyle and impossible to reduce. No marked muscle-wasting. Other joints normal. Present condition of hip satisfactory. X-rays showed head of femur in acetabulum.

Apophysitis of Tibia.—Mr. P. B. ROTH showed a boy, aged 13 years, with Schlatter's disease of both tibiae, which had subsided entirely with no other treatment but rest in bed for six months. Sir Anthony Bowlby in discussing the case stated that the condition had been described by Sir James Paget in 'Studies of Old Case Books,' published in 1891.

SECTION OF OTOTOLOGY.

February the 17th, 1922.

Localised Suppurative Meningitis over the Motor Cortex following Acute Mastoid Suppuration; Drainage; Recovery.—Mr. W. H. OGILVIE showed a girl, aged 12 years, who had been admitted to hospital with the following history: Sudden pain in left ear on November the 19th, 1921. Otorrhoea commenced in the evening of November the 20th; ceased in the morning of November the 21st, but recommenced in the evening. On admission to hospital the temperature was 101·4° F., pulse 128. Slight purulent left otorrhoea. No swelling, redness or superficial tenderness over mastoid. Tenderness on firm pressure over mastoid antrum and tip of mastoid process. The antrum was opened, found to contain granulations, but little pus. The mastoid process was chiselled away down to dense bone surrounding lateral sinus. The dura of the middle fossa was exposed. Infected cells and carious bone were found in the tip and along the anterior border of the mastoid process. The cavity was treated with B.I.P. and sewn up over glove drain. The temperature and pulse kept down for thirty-six hours and then commenced to rise again. November the 25th, 10 p.m.: Temperature 103·6° F., pulse 140; mental condition normal. November the 26th, 10 a.m.: Temperature 101·4° F., pulse 120; very drowsy; did not appear to grasp questions; eye reactions normal; knee-jerks and plantar reflexes normal; no paresis. The wound was opened, but no further bone disease was discovered on lumbar puncture. The cerebro-spinal fluid was under slight tension and showed lymphocytes and polymorphs in excess; no organisms. Slight reducing power; albumin 0·03 per cent. On November the 28th the drowsiness and inability to answer were increased. There was obvious paresis of right arm and hand and right side of face. The right abdominal reflexes was diminished and Babinski's sign was present on the right side; eyes reacted normally to light; no optic neuritis. Localised meningitis over the left motor cortex was diagnosed. A further operation was performed, and by removal of bone and incision of dura a roughly circular patch of purulent meningitis the size of a two-shilling-piece was found, overlying the middle third of the precentral convolution. A glove drain was inserted. During the next two days several Jacksonian fits occurred, involving the eyes, right side of face and right arm. November the 30th to December the 11th: No more fits; development of hernia cerebri; rapid improvement in mental condition; gradual improvement in paresis of arm and face. December the 12th: Right-sided sensory Jacksonian fit, involving arm, trunk and leg, and lasting about ten minutes; following this there was marked astereognosis in the right hand. The upper end of the wound was opened and a No. 8 catheter pushed under the dura in the direction of the face-arm sensory area in the post-central convolution. A collection of clear cerebro-

spinal fluid escaped. A glove drain was put along the track and four-hourly eusol dressings applied. Continuous improvement took place. The arm and face paresis cleared up rapidly. The hernia cerebri subsided in four weeks. The patient was discharged with the wound healed on January the 25th, 1922.

SECTION OF UROLOGY.

January the 26th, 1922.

Sarcoma of the Kidney.—Mr. CECIL ROWNTREE showed a boy, aged 8 years, on whom he had performed nephrectomy for renal sarcoma on April the 18th, 1920. In the subsequent discussion, Mr. J. D. MALCOLM recalled a case in which he had removed a kidney tumour from a child under two years of age in 1892, the patient being now alive and well. The tumour was called "a malignant adenoma" by Mr. Targitt, but Prof. Shattock had recently re-examined it and expressed the opinion that it was innocent. Abbe, of New York, had published two cases of prolonged survival of children after removal of renal growths. The longest living New York case and the London case, which might be considered complete cures after at least twenty and nearly thirty years, were operated upon within a week, respectively on November the 20th and November the 15th, 1892. All other recorded cases of renal neoplasm in children, when operation was survived, had so far shown a recurrence within five years, and frequently within eighteen months.

Specimen of Cystin Calculi from the Kidney of a Child.—Mr. J. B. MACALPINE.—The patient was a boy, aged 8 years, with typical pain in the left renal area. A skiagram showed good shadows of the calculi; on examination of the urine large quantities of cystin plates were observed, and the probable condition of the stones was suspected. The urine was sterile. Six stones were removed by nephro-lithotomy and the child made a good recovery. The stones were typical of the soft greenish-yellow calculi composed of cystin. One was large and occupied the pelvis of the kidney, and thus acquired its shape and proportions. As cystinuria was a familial condition, Mr. Macalpine examined the urines of the other members of the family, seven in all. In three cases cystin crystals were found in the urines—those of the mother, a sister and a brother. In all the cases the urines emitted a very foul odour, which was present even in the urines which did not show crystals. The smell appeared to result from the liberation of sulphur as sulphuretted hydrogen, and was possibly due to the decomposition of the sulphur amino-group.

Société de Pédiatrie, Paris.

February the 21st, 1922.

Disease of the Pineal Body.—M. M. P. WEIL, after alluding to M. Lereboullet's case (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1922, xix, p. 43), recorded a case in a boy, aged 15 years, who for the past five years had presented the following evidence of disease of the pineal body: (1) Signs of cranial hypertension, such as headache, vomiting, epileptic attacks and excess of sugar in the cerebrospinal fluid without hyperglycæmia. There were no ocular disturbances or bradycardia. (2) Disturbance of general development shown by an abnormally rapid growth at the onset of the disease. The intellectual development was superior to the normal for a child of his age. (3) Abnormal development of the penis, erections, development of hair on the cheeks, axillæ, pubis and legs. (4) Symptoms of changes in other endocrine glands, besides the pineal body and testes, as shown by attacks of dyspnoea probably of thymic origin, widening of the sella turcica and marked polyuria.

Kyphosis of Adolescence with Atrophy of Vertebral Epiphysis.—M. LANCE showed a girl, aged 15 years, who had been suffering from a rigid dorsal kyphosis for a year. X rays showed three cuneiform vertebræ, one of which (the ninth dorsal) presented an absence of the anterior part of the vertebral epiphysis which normally existed at that age. The appearances were typical of those described by Schanz (1911) and Scheuermann of Copenhagen (1921) under the name of "apprentices' kyphosis." The condition occurred most frequently in boys between the ages of 14 and 17 years engaged in laborious work. The kyphosis was always dorsal and was sometimes accompanied by a certain degree of scoliosis. The condition was always refractory to treatment.

Familial Kyphosis of Adolescence with Partial Hypertrophy of Four Vertebræ.—M. LANCE also showed a girl, aged 16 years, who for the last five months had been affected with a lumbar kyphosis of rapid development with considerable hypertrophy of the spinous processes of the corresponding lumbar vertebræ. X rays showed four cuneiform vertebræ (twelfth dorsal and first three lumbar), the shape of which was due, not to atrophy of the anterior portion, but to hypertrophy of the posterior part of the vertebræ. The father showed a similar condition dating from childhood. M. Lance had been unable to discover a similar case in the literature.

Encephalitis with Congenital Ichthyosis and Left Hemiparesis.—MM. L. GUINON and VINCENT showed a boy, aged 9 years, who had been admitted to hospital with convulsions, abundant albuminuria and excess of urea in the cerebrospinal fluid. These phenomena disappeared, but paralysis of the palate and pharynx developed, with loss of knee- and ankle-jerks, hemiatrophy of the face and limbs on the left side, and marked mental impairment. The speakers concluded that the case was one of encephalitis in a child who had been affected with very slight hemiplegia in infancy.

Cervical Myelitis with Meningeal Reaction.—MM. GUINON and VINCENT showed a boy, aged 3 years, who had been admitted to hospital

with meningeal symptoms suggesting tuberculous meningitis. Rhizomelic paresis of both upper limbs then developed with internal strabismus, paralysis of the diaphragm and absence of atrophy. The origin of the condition was obscure. The case was not one of lethargic encephalitis, but bore some resemblance to Heine-Medin's disease, though that disease was rarely seen at that season of the year.

Traumatic Coxa Vara with Polyglandular Insufficiency.—MM. LAURENT and HALLOPEAU showed a boy, aged 17 years, who as the result of a slight fall developed a separation of the upper epiphysis of the femur. The patient showed signs of polyglandular insufficiency, especially as regards sexual development. His appearance was that of a child aged 13 years. Recovery took place without a plaster apparatus, leaving the appearance of a typical coxa vara. Treatment by opotherapy, consisting of thyroid, pituitary and testicular extracts, had an excellent effect upon the infantilism.

Traumatic Bullous Dermatitis.—MM. APERT and HALLÉ showed an infant, aged 2 years, who since birth had developed bullæ on the body containing a clear serous fluid on the slightest trauma. There was no eosinophilia in the blood or in the fluid of the bullæ, which dried up without leaving any scar or pigmentation.

Meningeal Reaction in Non-Specific Coryza.—MM. RIBADEAU-DUMAS and PRIEUR stated that they had recently observed a large number of cases of coryza in infants, several of whom had been admitted to hospital with their mothers, who were suffering from various influenzal manifestations, such as rhino-pharyngitis, pulmonary congestion and broncho-pneumonia. The coryza was not syphilitic, as was shown by clinical examination and the negative Wassermann reaction in the mother and child. An infant suffering from coryza since birth had several attacks of convulsions which were not affected by bromides, but were cured by lumbar puncture. Examination of the cerebrospinal fluid showed a large quantity of albumin, a lymphocytosis of 20 to 25 cells in a field, and negative Wassermann and colloidal benzoin reactions. Recovery took place. Subsequently lumbar puncture was performed on infants with coryza who did not show any nervous symptoms clinically, and a slight increase in the number of the lymphocytes and excess of albumin was frequently but not invariably found.

Intolerance for Cow's Milk; Breast-Feeding; Death on return to Cow's Milk.—MM. RIBADEAU-DUMAS and PRIEUR also recorded the case of an infant, aged 3 weeks, who had intolerance for cow's milk, as shown by repeated vomiting and green stools. His brother had died at the age of 6 weeks from the same cause. Rapid improvement occurred when a wet-nurse was employed, but vomiting reappeared on return to cow's milk. Resumption of breast-feeding caused the same improvement as on the first occasion. A month later, owing to the nurse's milk becoming scanty, sterilised cow's milk was given. Uncontrollable vomiting ensued, and death took place in five days. The autopsy showed a small retracted stomach, with hæmorrhages in the pyloric region, a normal intestine, absence of broncho-pneumonia, and thrombosis of the meningeal sinuses.

The case was probably an example of anaphylaxis. The speakers had since observed a child who presented similar symptoms, but subcutaneous injections first of woman's milk and then of cow's milk according to Weill's method (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1919, xvi, p. 221) enabled feeding with cow's milk to be continued.

Thyroid Opothrapy in Hypotrophic Infants.—M. M. MAILLET stated that he had treated thirty-two maldeveloped infants, aged from 4 to 20 months, by administration of thyroid extract in doses ranging from 1 cg. to $2\frac{1}{2}$ cg. according to the case, and found that the drug had a remarkably rapid action not only on the weight and height, but also on the condition of profound apathy and lack of muscular tone so frequently present in these children. Dentition and development of the bones, especially those of the skull, were very rapidly affected. Anorexia, vaso-motor changes in the extremities, adenoids and chronic rhino-pharyngitis were also benefited by the treatment. The age of the patient was not a contra-indication to the treatment, several of the cases being aged from 4 to 6 months. The only contra-indication according to Maillet was an excessive degree of nervousness, insomnia, and acute or severe gastro-intestinal disturbance. In most of the cases the drug was given daily for a series of 10 days, after which an equally long interval was allowed to elapse. If a favourable effect was slow in taking place, the first course was prolonged to 15 or 20 days and was followed by an interval of 10 days, with subsequent series each of 10 days and intervals of the same duration. In cases of congenital syphilis in which the weight remained stationary in spite of specific treatment it was found to increase as soon as thyroid treatment was administered.

Abstracts from Current Literature.

Surgery.

Some aspects of the abdominal emergencies of childhood (*Brit. Med. Journ.*, 1922, I, p. 173).—J. FRASER says that these are limited in practice to the small and large intestines, chronic ulcerative and malignant conditions can be excluded, and the various mental conditions which lead to exaggeration in adults are not met with in children. The examination may often be facilitated by the administration of a little chloroform. Appendicitis may occur in infants as young as 4 months. It is usually not fulminant. Repeated attacks of sickness in children often denote appendicitis. Symptoms of appendicitis appear in the following order: (1) pain, epigastric, umbilical, or general, (2) nausea or vomiting, (3) local iliac tenderness, and (4) fever. Vomiting always occurs in children, except in retrocaecal cases, and if severe distension of the appendix has occurred, perforation may supervene. If the appendix lies low in the pelvis abdominal symptoms are few, but are replaced by suprapubic pain, frequency of micturition and diarrhoea. Further rigidity of the obturator internus may be produced, and demonstrated by the inability to rotate the flexed thigh inwards. In retrocaecal appendicitis rigidity of the external abdominal muscles is absent, but that of the

psoas and iliacus may be demonstrated by attempting to extend the thigh with the patient lying on the left side. The mesenteric appendix lies behind the bowel and beneath the mesentery, and this position is suggested by marked central muscular rigidity, umbilical pain, early and persistent vomiting, and early abdominal distension. As regards diagnosis, acute pyelitis must be considered, which is characterised by occurring most commonly in the female sex, by an early and high remittent temperature, by the marked prostration and the intense general irritability. Pain is less severe and is situated over the pelvis of the kidney. The urine is opalescent and contains a small amount of albumin, and if a microscopical specimen from the centre of the sample be taken and not from the deposit, pus-cells and coli bacilli are found. Cyclic vomiting may come on with great suddenness, the child looks very ill and drowsy and the urine contains acetone. Ileocaecal lymphadenitis is very difficult to distinguish from appendicitis. The glands are enlarged from tuberculosis and may be felt; occasionally these undergo attacks of lymphadenitis and cause severe abdominal pain. Vomiting ensues and may persist for 48 hours but subsides with characteristic rapidity. Fever is of early and not of late occurrence as in appendicitis. An abnormally high appendix when inflamed may cause symptoms resembling basal pneumonia or diaphragmatic pleurisy. Two tests are advocated. In appendicitis pressure on the left side of the abdomen increases the pain, while no alteration is noted in basal pneumonia. If the diaphragm be involved there is frequently an area of hypersensitivity of collar shape in the region of the fourth cervical nerve. Primary pneumococcal peritonitis occurs in the female sex alone, infection occurring through the vagina and Fallopian tubes. Pelvic peritonitis occurs rapidly and may be quickly followed by general septicæmia. Concerning intussusception Fraser says that this is a disease of the poor due to dietetic indiscretions. The ileo-colic is the most fatal, the colic the most favourable variety. The latter may persist for weeks with incomplete obstruction and small extravasation of blood. In the enteric variety hæmorrhage may not occur till late in the disease. Henoch's purpura may be distinguished by a scanty purpuric eruption and an infiltrated and œdematous rectal mucosa. Volvulus in children is ileocaecal and does not affect the sigmoid. When hernia in children becomes irreducible strangulation rarely results.

CHRISTOPHER ROLLESTON.

Acute intussusception in children (*Dub. Journ. Med. Science*, 4th series, 1921, p. 242).—**C. J. MacAuley** emphasises the importance of early diagnosis and prompt treatment, and bases his remarks on the records of twenty-three consecutive cases under his care. The onset is nearly always dramatically sudden. A rectal examination should never be omitted. Diagnosis is rarely difficult, but acute colitis and Henoch's purpura must be borne in mind. Treatment is essentially operative and must be carried out as soon as possible. Inflation of the bowel by air or fluid *per rectum* is to be condemned. As the chief danger attending operation is shock, all measures to minimise shock should be employed. The two great essentials after operation are heat and fluids. Feeding should be begun at the earliest possible moment. Starvation in these cases is fatal. J. ALLAN.

Chronic intussusception (*Med. Journ. Austral.*, 1922, 1, p. 270).—**H. H. Schlink** removed by operation in a girl, aged 7 years, an intus-

susception of the cæco-ileo-cæcal variety, commencing at the caput cæci, and reaching below the junction of the pelvic colon and rectum. The result was successful.

F. R. B. ATKINSON.

Mobile ascending colon and duodenal obstruction as common causes of equivocal symptoms in the abdomen (*Dub. Journ. Med. Science*, 4th series, 1921, p. 399).—A. A. McConnell.—A girl, aged 12 years, was admitted to hospital as a case of intussusception. Three days before she had had acute pain across the upper part of abdomen. She vomited once copiously. The stools contained blood and mucus. Attacks of pain, intermittent since onset, relieved when sat on chamber. Physical examination negative except for tenderness on right side of epigastrium. At operation dilatation of duodenum down to crossing of superior mesenteric artery and freely mobile ascending colon loaded with hard fæces were found. As colopexy would have required another incision this was not done. X ray a few days after showed retention of barium in duodenum. Treatment was directed to unloading the colon. When this was done there was complete relief. If constipation is avoided there will probably be no drag on the artery.

J. ALLAN.

Notes on an unusual case of intestinal obstruction (*Med. J. Austral.*, 1920, II, p. 244).—J. Macarthur operated on a girl, aged 14 years, who made a successful recovery. The operation revealed an abnormally movable ileo-cæcal segment. The cæcum and colon had an unusually large mesentery which had twisted and strangulated the upper half of the small intestine.

F. R. B. ATKINSON.

Rupture of the bowel by compressed air (*Med. J. Austral.*, 1921, II, p. 538).—W. A. Halles records the case of a boy, aged 16 years. A conducting pipe of a cylinder of compressed air was turned close to the boy's buttocks. The boy collapsed and died the next day. The autopsy revealed a tear near the hepatic flexure and marked generalised emphysema. Only 25 cases are reported in the literature.

F. R. B. ATKINSON.

Recent advances in orthopædic surgery (*Lancet*, 1922, I, p. 879).—E. Laming Evans states that marvellous results accrue from transplantation of tendons. Arthrodesis of the ankle-joint in anterior poliomyelitis does not give satisfactory results and should be replaced by stability operations, attacking the subastragaloid and mid-tarsal joints. In congenital club-foot no bone removal should be undertaken in infancy or early childhood, and Phelps' operation is of a very limited application. Astragulectomy is satisfactory if backward displacement be performed so that the malleoli may engage the lateral aspects of the mid-tarsal joint. Bone grafting in cases of the spine should only be used in a small number of cases. Posterior root sections have proved unsatisfactory on the whole, and if performed for spasm in spastic paralysis have to be supplemented by re-education and exercises. Excision of the nerve-fibres supplying the spastic muscles is useful in such cases. Treatment of scoliosis by frame extension and fixation in plaster-of-Paris is disappointing. Increasing knowledge shows that in Calvé's disease (osteochondritis deformans juvenilis) there may be much bone destruction and consequent deformity, so that Thomas's splints, rest and extension have to be employed. The

author suggests that a similar disease attacks the spine which may cause dorsal kyphosis involving four to six vertebræ; such cases show few progressive signs and are not attended by abscess-formation.

CHRISTOPHER ROLLESTON.

The diagnosis of early hip-joint disease in children (*New York Med. Journ.*, 1922, cxv, p. 256).—**J. T. Rugh.**—The onset is insidious—usually between the ages of 2–15 years. There is often a history of measles or influenza and of some slight injury. The first symptom is an intermittent limp, but no pain. The limp is due to muscle spasm, Nature attempting to immobilise the joint. There is limitation of movement, and muscular atrophy begins early. Pain is a late manifestation. The temperature is slightly raised. X rays are of less importance than clinical examination; they may show absorption of bone and roughening of the surface of the cartilage but the plate must be unusually good to be of much value. The diagnosis has to be made from rheumatism, so-called growing-pains, synovitis, epiphysal infection after injuries or acute disease, infantile scurvy, spinal disease with contraction of the psoas muscle and coxa vara. In this latter there is a limp without muscular atrophy or limitation of movement, and the X-ray plate shows the alteration of the angle of the neck of the femur.

J. PORTER PARKINSON.

Legg's or Perthes' diseases (*Lancet*, 1921, I, p. 210).—**H. B. Roderick** differentiates between the symptoms of the various forms of hip disease. In early tuberculosis of the hip a few weeks' rest in bed may cause all symptoms to disappear, flexion and extension being but little restricted. Abduction and rotation are the movements first interfered with. On grasping the femur in the region of the condyles and rotating the femur, spasm of the abdominal muscles is easily demonstrated if the hand is placed on the abdomen between the iliac spines (Gauvain's sign). Pain on direct pressure below the middle of Poupart's ligament is an early sign of hip disease. Congenital dislocation is marked by great mobility of the thigh. On flexing the affected leg and adducting while manipulating the limb, so as to press the head of the femur away from the pelvis, two prominences, the head and the trochanter, can be felt. If only one protuberance is made out this is the trochanter and no dislocation is present. In coxa vara the limp is painless and there is limitation of abduction and internal rotation. In coxa adducta only abduction is limited. Perthes' or Legg's disease has now been described in 50 individuals, 40 being boys and 10 girls. The subjects of this disease are in good health. There may be some elevation of the trochanter, flexion and extension are free, but abduction is much restricted. There is limp, with some amount of pain. There is no crepitation on movement. On X-ray examination there are light spots on the head which are islets of cartilage, showing irregularity of ossification (which suggests an imperfect blood supply as a causal factor). There is usually a history of injury four to six months previously. It may occur on the sound side after reduction of a congenital dislocation. Gauvain thinks that it may be due to a protozoal infection. Roberts thinks that it is due to congenital syphilis as it is an osteochondritis which is common in specific disease. Trauma is more common in boys, and further, the disease is limited to the epiphysis, which is most liable to injury.

CHRISTOPHER ROLLESTON.

Perthes' disease (*Dub. Journ. Med. Science*, 4th series, 1921, p. 431).—At a meeting of the Royal Academy of Medicine in Ireland, Section of Surgery, **C. J. MacAuley** showed radiograms of two cases, one occurring in a boy, aged 4½ years, the other in a girl, aged 7 years. In both children there was a limp, with slight muscular wasting and limitation of abduction. The femoral heads showed flattening and fragmentation of the epiphysis.

J. ALLAN.

Pseudo-coxalgia (*Lancet*, 1921, 1, p. 20).—**H. A. T. Fairbank** describes this disease as fairly common between the ages of 3½ to 12 years. It begins with limping and is accompanied by little or no pain. There is slight wasting of thigh and buttock. Abduction is limited while flexion is free. Internal rotation and extension may be somewhat limited. There is no pain on jarring the trochanter or the heel. On X-ray examination the epiphysis of the head of the femur is flattened from above downwards, irregular in outline and density or even broken up into fragments. The epiphysal line is less distinct than usual. The neck of the former is thickened on its lower side. The cartilaginous head is little if at all distorted. Cases always recover with or without treatment. The limp is slowly and gradually lost. No abscess-formation or other complications are known. Neither tubercle nor syphilis can be incriminated. Perhaps trauma interferes with the blood supply of the femur.

CHRISTOPHER ROLLESTON.

Treatment of neglected cases of club foot (*Brit. Med. Journ.*, 1921, II, p. 1109).—**W. P. Noall** points out that in old and neglected cases tenotomies alone are useless. The bones have grown abnormally, and therefore excision through the medio-tarsal joint is advised. *Talipes equino varus*:—Bleeding is prevented by the application of a tourniquet to the thigh. The tense bands of plantar fascia are divided subcutaneously. The inferior and internal portions of the astragalo-scaphoid and the long and short plantar ligaments are then divided. The foot is unrolled and stretched manually as much as possible. A curved incision is then made from below, and in front of the internal malleolus downwards and outwards over the dorsum of the foot towards its outer border. The various tendons are then exposed, the nerve to the extensor brevis digitorum is preserved, and the muscle itself is detached from the head of the os calcis and turned outwards. The astragalo-scaphoid joint is then opened. The periosteum and ligamentous capsule are then separated by a rugine from the neck of the astragalus. The head and part of the neck of the astragalus are then removed, and a thin layer is taken off the adjacent surface of the scaphoid. The calcaneo-cuboid joint is then opened dorsally and adjacent portions of these bones removed. The varus should now be completely corrected. The medio-tarsal joint is closed dorsally with strong chromic catgut sutures. In cases of overaction of the tibialis anticus its insertion may be detached and sutured to the periosteum so that it becomes an inverter of the foot. The extensor brevis digitorum is now resutured to the upper surface of the os calcis. The anterior annular ligament is then united over the extensor tendons and the skin wound sutured. The tendo Achillis is then lengthened by the usual Z-shaped incision. The posterior ligament of the ankle-joint is then divided so that the foot can be dorsiflexed beyond a right angle. The two ends of the tendo Achillis are sutured and the wound closed. Wool

and bandage is applied from the knee to the base of the toes. Plaster-of-Paris bandages are then applied, and before setting the casing is slit up anteriorly and covered by a cotton-wool bandage. At the end of six weeks the plaster is removed and massage is started. Internal and external leg irons are provided. A stop is inserted at the ankle to limit plantar flexion, and a varus T strap to counteract any tendency to a return to the varus position. A cork sole is also added to counteract any shortening. If there is any inward rotation of the lower part of the leg, the leg iron should be continued up to the pelvis and fitted there to a band. *Talipes calcaneocavus*:—Stage 1: Through an incision on the inner and outer border of the foot through the summit of the cavus deformity a wedge-shaped piece of bone is removed. The foot is bandaged to the tibia by plaster, which is removed in five weeks. Stage 2: The anterior ligament of the ankle-joint is divided through an incision across the front of the joint. Through an incision over the tendo Achillis the tendon is divided and a wedge-shaped piece of bone removed from the back of the astragalus, the base backwards. This allows for dorsi- and plantar flexion. Dressing and after-treatment proceed in the same way as for *talipes equino-varus*. The shortening of the affected limb gradually disappears. Personal supervision by the operator and skilled massage are necessary for some years.

CHRISTOPHER ROLLESTON.

Congenital dislocation of the head of the radius (*'Il Policlinico,'* 1922, XXIX, *Sec. Prat.*, p. 8).—Kraus, who records a case in a girl, aged 10 years, states that congenital dislocation of the head of the radius is fairly common, being considered by Blodgett (1906) as the third most frequent of all congenital dislocations. Andreini in 1914 collected 116 cases, which, in conjunction with the present case and one previously reported by Kraus, make a total of 118 cases, which may be grouped as follows: bilateral dislocation in 68 cases, or 57·62 per cent., and unilateral dislocation in 50 cases, or 42·38 per cent. Backward dislocation occurred in 65, forward dislocation in 37 and outward in 11. In 5 cases there was subluxation only: 75 per cent. of the cases occurred in the male sex. Kraus, however, points out that a limitation of movement in a male subject is much more likely to attract the parents' attention owing to the possibility of his value as a workman being affected than in a girl, especially when the deformity is not severe, so that probably a good number of cases escape notice.

J. D. ROLLESTON.

Ischæmic contracture of forearm (*'Glasg. Med. Journ.,'* 1920, II, p. 215).—A. Young reports a case in a boy aged 11 years. The condition occurred after fracture of both bones of the left forearm slightly above the middle. A detailed account is given of the treatment by manipulation and splinting. Over two years after the injury recovery was not quite complete.

J. ALLAN.

Arthroplasty of the knee-joint (*'Dub. Journ. Med. Science,'* 4th series, 1920, p. 402).—W. I. de C. Wheeler, at a meeting of the Royal Academy of Medicine in Ireland, Section of Surgery, showed a case with radiograms taken before and after operation. The patient, a little girl, had osteomyelitis six years ago, resulting in a double ankylosis, the left knee being flexed and the right extended. Using lateral incisions he had re-

modelled the femoral and tibial condyles and had interposed lateral flaps of the soft tissues. The articulating surfaces should be as wide as possible to anticipate lateral instability. The result was excellent. J. ALLAN.

Sclerosing non-suppurative osteomyelitis (*Journ. Amer. Med. Assoc.*, 1921, LXXVII, p. 986).—**S. Fosdick Jones** states that this condition was first fully described by Garrè in 1891, although an isolated case had been reported by Klippel in 1879. In the great majority of cases the onset is acute, accompanied by a high fever, swelling of the affected limb, pain at the site of the bone lesion, and considerable infiltration of the soft parts, but the skin over the affected bone is not reddened and there is no formation of pus. As the temperature subsides the swelling of the soft parts disappears and only the permanent enlargement of the bone remains. The condition must be distinguished from sarcoma of the bone, bone syphilis and solid osteitis fibrosa. Although osteocopic pains are common to both diseases, the absence of other syphilitic manifestations, the gradual subsidence of the pain and the negative Wassermann reaction in the blood and cerebro-spinal fluid should distinguish Garrè's disease from bone syphilis. Malignant disease can be excluded by the initial rise of temperature, absence of glandular enlargement, the infiltration of the soft parts, and the absence of cachexia and rapid loss of weight. Careful X-ray examination should be made in each case. In osteitis fibrosa, with or without formation of cysts, spontaneous fracture is the predominant symptom, the temperature is normal, and swelling and pain are not symptoms of which the patient complains. In doubtful cases of bone disease a frozen section should be examined at the time of operation, in order to determine the exact pathological process and to prevent unnecessary amputation.

J. D. ROLLESTON.

Osteomyelitis of the upper jaw in infants (*Rev. de Lar., d'Otol. et de Rhinol.*, 1921, XLII, p. 463).—**Vernieuwe** states that acute osteomyelitis is found in the following order of frequency in different parts of the body: tibia, femur, humerus, flat bones of the skull, lower jaw, terminal phalanges of the fingers, clavicle, ulna, radius, fibula, scapula, upper jaw, pelvis, sternum and ribs. The much greater frequency with which the lower jaw is involved compared with the upper jaw is due to its relatively poor blood supply. The upper jaw is supplied by all the branches of the internal maxillary artery with its numerous anastomoses, whereas the lower jaw is supplied by only two small arteries which have no anastomoses. Acute osteomyelitis of the upper jaw is comparatively uncommon, especially if that due to phosphorus poisoning or acute exanthemata, particularly scarlet fever, be excluded. Infants are chiefly affected, as out of twenty-seven cases collected by Landwehrmann 60 per cent. occurred during the first month of life. The osteitis may arise from three sources: (1) the buccal cavity and alveoli; (2) the orbit and lacrymal ducts; (3) the nose. Vernieuwe records two cases in infants aged 5 weeks and 2 months respectively simulating maxillary sinusitis.

J. D. ROLLESTON.

Two cases of mediastinal abscess from dorsal Pott's disease (*La Pediatría*, 1920, XXVIII, p. 1048).—**C. Pestalozza** describes fully two cases: (1) a boy, aged 10 years, suffering from dyspnoea and "asthmatic" attacks of inspiratory type (which excluded the diagnosis of primary asthma). Examination of the nasopharynx and larynx was negative. X rays showed a dark shadow between the fourth and sixth dorsal vertebræ and changes in the

spines of the fifth and sixth dorsal vertebræ. In spite of exploratory puncture being negative, a diagnosis of abscess was made rather than that of a large tracheobronchial adenopathy owing to the rotundity of the X ray outline. (2) A girl, aged 3 years, in whom there was marked wasting and enlargement over the spine of the first and second dorsal vertebræ. X rays showed a clearly-defined triangular shadow over the upper part of the sternum. On exploratory puncture a small quantity of amorphous material was withdrawn.

VINCENT DICKINSON.

Wound of the thoracic duct in the removal of tuberculous cervical glands (*Glasg. Med. Journ.*, 1921, I, p. 398).—G. H. Edington reports a case in a boy, aged 7 years. Tuberculous cervical glands in the anterior and posterior triangles of the left side were dissected out from the base of the skull to the root of the neck. The thoracic duct was not seen, and there was nothing unusual in the appearance of the wound at the conclusion of the operation. There was a post-operative rise of temperature to over 100° F., and in thirty-six hours the dressings began to be soaked with watery discharge. On the fourth day the temperature had fallen to normal, but milky fluid welled from the wound. Under chloroform the wound was opened and fluid sponged out. All swelling had ceased, but some bleeding occurred on handling the internal jugular vein, the bleeding spot being ligated with difficulty. On the sixth day the morning temperature was 103°, falling in the evening to 100°, and the boy was much better. On the ninth day there was dyspnoea and lividity, and dulness at the left base. Temperature was 104° and the discharge was less. On the eleventh day the discharge was more profuse, and on the twelfth day there was much bleeding. On the following day the case was seen in consultation with a colleague, and on dressing the wound a large opening in the outer side of the jugular vein was found. The trunk was ligated, and the sterno-mastoid and omo-hyoid were sutured down to the scalenus anticus. Death took place the same night with a copious flow of blood from the wound.

J. ALLAN.

Osteopsathyrosis idiopathica (*La Pediatria*, 1920, XXVIII, p. 953).—E. Ruggeri.—This condition was first described by Löbstein under this name in 1835, and subsequently by Vrolich in 1849 under the title of "osteogenesis imperfecta." The author reports the case of a girl, aged 13 years, who suffered from bony fractures in eleven different positions from the age of 19 days to 12 years. The case presented various osseous deformities, bitemporal prominence, kyphoscoliosis and subluxations. Radiograms showed hypoplasia of the diaphyses with trabecular rarefaction. There was a slight blue tinge of the sclerotics and changes in the phospho-calcio-magnesium metabolism. The Wassermann reaction was negative. Red blood-cells 3,920,000, white 5300, hæmoglobin 68 per cent., polymorpho-nuclears 68 per cent., lymphocytes 23 per cent., large mononuclears 6 per cent., eosinophils 1 per cent. After treatment for 2½ months with adrenalin and extract of thymus the patient's condition improved, weight increasing by 4 kgrm., the red corpuscles to 4,800,000, white 6900, hæmoglobin 92 per cent., the leucocytic formula becoming normal.

VINCENT DICKINSON.

Meningitis with putrid cerebro-spinal fluid following slight trauma to the back and operation for adenoids and large tonsils (*Med. J.*

Austral., 1921, II, p. 457).—**W. D. Upjohn**.—The patient was a girl, aged 12 years. Lumbar puncture revealed a foul-smelling purulent fluid containing various cocci. The child died about 18 hours later, and post-mortem examination showed diffuse purulent meningitis, and pus in the ventricular system, and disease of the spleen, liver and kidneys.

F. R. B. ATKINSON.

Thrombo-phlebitis of the cavernous sinus of dental origin (*Paris méd.*, 1921, II, p. 305).—**Lauret**, who records a fatal case in a girl, aged 7½ years, remarks that propagation by the veins to the cranial sinuses and meninges of an ordinary dental infection, though by no means common, is worthy of attention on account of its gravity. Delay in operating and stagnation of pus play an important part in its causation. Early and energetic treatment is required on the first manifestation of a dental infection of this kind.

J. D. ROLLESTON.

Reviews.

MANAGEMENT OF THE SICK INFANT. By **LANGLEY PORTER, B.S., M.D.,**
AND **WILLIAM E. CARTER, M.D.** Pp. 654. London: Henry Kimpton,
1922. Price 42s. net.

In a foreword to the volume the authors state that they have been unable to find any text-book in the English language which deals exclusively with the peculiarities of disease as it occurs in infants, and that there appears therefore to be a need for a work of this kind. While there is little real justification for such a plea in view of the existing excellent standard text-books on the diseases of children, the new work is a not unworthy addition to the literature, presenting, moreover, some originality of method and of arrangement of subject-matter. There are three sections, in the first of which are discussed some of the commoner symptoms met with, including vomiting, diarrhoea, constipation, hæmorrhage, pain and tenderness, convulsions, syncope, fever and cough, together with a chapter on nutrition. Part II deals with diseases of the respiratory, digestive, circulatory, lymphatic, nervous and osseous systems, with chapters on skin, genito-urinary and infectious diseases, and one on the internal secretions.

Part III, which is concerned mainly with methods of procedure, is in some ways the most satisfactory section of the book, the directions given being particularly lucid as well as practical, while the fifty-four illustrations add still further to the clarity of the text. The procedures are carefully written out step by step, and the various items of equipment needed in each case enumerated.

Among the measures thus discussed are intravenous, intramuscular, subcutaneous and intraperitoneal injections of various substances, transfusion of blood, lumbar and ventricular puncture, gastric lavage and gavage, bowel and bladder irrigation, catheterisation, irrigation of the ear, paracentesis tympani, nose and eye irrigation. Directions are also given for the manipulative reduction of inguinal and umbilical hernia, as well as for the preparation of various baths and packs, while a useful chapter of formulæ and recipes is added, followed by a chapter on drugs and prescriptions indicated in various conditions. In diphtheria the authors advocate

intravenous or intramuscular injections of antitoxin, of never less than 10,000 units, with the addition in the laryngeal type of the inhalation of fumes from calomel placed on a hot metal plate. A short chapter on poisoning completes a book which, mainly by virtue of the eminently practical character of the concluding section, will be found of great service to the general practitioner.

The volume is well got up, and is supplied with an adequate index.

E. M.

ALIMENTATION ET HYGIÈNE DES ENFANTS. Par J. COMBY. Pp. 440.
Paris: Vigot Frères, 1922. Price 10 fr.

DR. Comby's excellent handbook for mothers, nurses, midwives and students, which is now in its fourth edition, is too well known to need detailed recommendation. In a few prefatory remarks to this new edition the author explains that he has not hesitated to use technical phrases, or to incorporate even into such a rudimentary text-book as this the essential scientific facts on which current medical practice as regards the feeding and hygiene of infants is based, but the teaching has lost thereby none of its former clearness and simplicity. The volume being emphatically a book of reference rather than a treatise, the alphabetical method of arrangement has been adopted as the most practical, an index still further facilitating its use.

While the handbook deals first and foremost, as its title implies, with questions of feeding and of hygiene—the latter term receiving a sufficiently broad interpretation—a number of the commoner ailments and disorders of infancy are also briefly discussed, these including constipation, diarrhoea, vomiting, intestinal worms, convulsions, and so on. Although it is written mainly for the uninstructed, to the practitioner who has not time for much reading Dr. Comby's work should prove of value and interest, while we cordially commend it to the attention of all other classes having the care of infants.

E. M.

DIAGNOSTIK DER KINDERKRANKHEITEN MIT BESONDERER BERÜCKSICHTIGUNG DES SÄUGLINGS. Von Prof. Dr. E. FEER, Direktor der Universitäts-Kinderklinik in Zurich. Zweite Vermehrte und Verbesserte Auflage. Berlin: Julius Springer, 1922. Price in Germany, paper, 114 m., bound 160 m.; in England, paper 17s., bound 20s.

A SECOND edition of Prof. Feer's book on the diagnosis of children's diseases has been published within a year of its original appearance (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1921, xviii, p. 167). Opportunity has been taken to make a few amplifications of the text, and to add some further photographs to the remarkable collection illustrating almost all phrases of disease in infancy and childhood.

H. C. C.

TUBERCULOSIS IN INFANCY AND CHILDHOOD. By J. CLAXTON GITTINGS, M.D., FRANK CROZER KNOWLES, M.D., and ASTLEY P. C. ASHHURST, M.D. Philadelphia and London: J. B. Lippincott Co., 1922. Pp. 273. Price 21s. net.

THIS book, which is intended for the use of the general practitioner, is based upon a course of lectures which was delivered at the Children's Hospital, Philadelphia, under the auspices of the Philadelphia Pediatric Society. Although it contains nothing outstandingly new there is undoubtedly room for a comprehensive presentation of the diagnosis and

treatment of tuberculosis in early life, and as such the volume will assuredly find its public.

There are ten chapters, the first of which is devoted to general considerations, mainly of an ætiological character; the second to general principles of diagnosis; and the third to tuberculin in diagnosis and to tuberculosis of the cervical nodes. In the next six chapters are discussed the various manifestations of tuberculosis in childhood, and the last chapter is devoted to treatment. On the whole the authors have covered the ground well, and while there is a commendable absence of dogmatism on questions which may still be regarded as *sub judice*, such as that of stability of type, clear indications are given as to the side on which in their opinion the balance of evidence lies. The number of authorities consulted is considerable, more particularly on the experimental side, the book being in most respects thoroughly up to date. We disagree, however, with the statement made in the first chapter to the effect that "unless the mammary gland be actually diseased there is little evidence to show that tubercle bacilli can be transmitted in mother's milk," recent carefully controlled experiments in France having clearly demonstrated this to be a clinical possibility that must be reckoned with.

While the different sections of the book are not all of equal value—the chapter on treatment, for example, being a little weak in some respects—the medical profession generally, and the pædiatrist in particular, owes a debt of gratitude to these three authors for their useful and interesting monograph.

E. M.

LEHRBUCH DER GRENZGEBIETE DER MEDIZIN UND ZAHNHEILKUNDE.
BEARBEITET UND HERAUSGEGEBEN VON DR. JULIUS MISCH. Zwei
Bände, Zweite vermehrte und teilweise neuarbeitete Auflage. Leipzig:
F. C. W. Vogel, 1922. Price for abroad, M. 1200 paper, bound
M. 1425; in Germany, M. 400 paper, bound M. 475.

This work on the relation of medicine and dentistry, of which the first edition appeared in April, 1914, consists of two volumes each containing more than 600 pages, and is intended for the use of students, dentists and medical practitioners. It is divided into ten parts, devoted respectively to internal diseases, pædiatrics, neurology, syphilis, dermatology, gynaecology, rhinology and laryngology, otology, ophthalmology and industrial diseases. The present edition has been thoroughly revised, certain parts having been entirely re-written, such as those on stomatitis, anæsthesia, diseases of the blood, kidneys, circulation and stomach, oral hygiene in children, fractures and dislocations of the teeth, etc. Several new subjects have been added, including discoloration of the teeth, injuries to the salivary glands, changes in the teeth due to old age, smallpox, malaria, jaundice, persistence of the milk teeth, third dentition, bulbar paralysis, changes in the teeth due to nerve injuries, impetigo contagiosa, favus, occupational dermatoses of the dentist, etc. The editor, Dr. Julius Misch, a well-known Berlin dentist, who has taken an active part in the preparation of each section, is to be congratulated for having secured such excellent collaborators. In the section on diseases of children, which is mainly the work of Dr. Gustav Tugendreich, the writers, after a brief anatomical and physiological introduction, discuss dentition, the relation of children's diseases to disorders of the teeth and mouth, acute infectious diseases, diseases of the mouth, diseases of the tongue, and malformations such as hare-lip and cleft palate, with an appendix on oral hygiene and anæsthesia in childhood. The other sections, which

contain much that will interest the pædiatrist, are those on nervous diseases by Dr. Kron, skin diseases by Dr. Ledermann, rhinology and laryngology by Dr. Findler, and otology by Dr. Grossmann.

The work is well printed and illustrated, and should prove a valuable work of reference. J. D. R.

RÔLE DE LA RADIOLOGIE DANS LE PRONOSTIC DES AFFECTIONS CARDIO-VASCULAIRES. Par le Docteur Germaine ANDRÉ SOREL. Avec Préface de M. le Prof. VAQUEZ. Paris: A. Davy. Price 15 frs.

DR. ANDRÉ SOREL has entered into a careful study of cardio-vascular conditions by radiology and has drawn up diagrams and measurements representing the normal states and the changes which occur in the abnormal heart. The work has been of very considerable extent and the results will be of great use to radiologists and to cardiologists. The elucidation by radiology of problems in relation to heart disease, especially in its early stages, has been neglected up to the present. Many conditions which cannot be shown by percussion and auscultation can be seen by screen observations. We welcome, therefore, this work by Dr. Sorel.

The conditions of hypertrophy and dilatation can be distinguished by radiology, and exact diagrams are given to show the means of making such distinction. It is also pointed out that in many cases there is distension only. Continuing in the same way the author shows how radiology gives us information regarding alterations in the shape and size of the heart which can be demonstrated even though they may be confined to one or other of the chambers, and thus demonstrate that radiology is a far more exact method than ordinary examinations by percussion and auscultation.

Much of the work will need confirmation, but it is very valuable work and the ground covered includes practically all conditions. Special attention is paid to aortitis. Some of the conclusions reached are as follows: Cardiac insufficiency occurs in three successive states of the cardiac muscle, distension, hypertrophy and dilatation. The last is the only one that indicates failure of the heart. Each of the cardiac chambers has its own demarcation and these are demonstrable by radiographic methods. Screen examination is the only method by which the diagnosis and prognosis of aortitis can be made with any degree of certainty. C. P. L.

LE DISPENSAIRE MARIN. Par J. JARRICOT. Pp. 637. Paris: Masson et Cie, 1922. Price 60 fr. net.

In this bulky volume the author presents what he describes as the first of a series of scientific studies on the uses of sea-water in therapeutics and in the prophylaxis of diseases of young infants, and deprecates the organised opposition to this method of treatment among the medical profession generally. There are six chapters, in the first of which are set out the claims of the sea-water dispensary to a high place among puericultural methods, as substantiated by the records of 237 infants cured of digestive troubles by this means. In the second chapter sea-water serum and artificial serum are compared as regards their chemical composition, their thermic and therapeutic effects and their elimination by the kidney, an appendix and bibliography on the biological properties of sea-water being added. The remainder of the volume is taken up by a detailed account of the working of a sea-water dispensary, with the effect of the treatment on the nutrition and growth of infants, and finally of the causes for real and

apparent failure in certain cases. The book is profusely illustrated by charts and by photographs of infants before, during and after treatment, some of the latter, it must be owned, being very impressive. Dr. Jarriocot's enthusiasm and his laborious analysis of cases treated should do a good deal towards popularising this method of treatment for infants suffering from various forms of defective or faulty nutrition. E. M.

L'ANNÉE THÉRAPEUTIQUE. Par L. CHEINISSE. Pp. 152. Paris: Masson et Cie, 1922. Price 6 fr. net.

By the issue of this year-book of therapeutic treatment, of which the first number appeared in January, 1921 (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1921, xviii, p. 223.—ED.), Dr. Cheinisse lays the medical profession under a real debt of gratitude. It is becoming increasingly difficult to keep pace with the new remedies, pharmacological and otherwise, details of which are constantly appearing in the medical press; hence a digest such as is afforded by the present volume is of the greatest possible value to the medical practitioner. The general arrangement of the work is that adopted in the previous number, and for ease of reference it could scarcely be improved upon. The greater part of the book is taken up with a list, arranged alphabetically, of the diseases for which new remedies or methods of treatment have been tried during the past year, with a detailed description of these remedies and references to the publications in which they first appeared. The second part of the book is devoted to the technique of intracardiac, intrathecal, intravenous and subcutaneous injections, insufflations of warm air for diphtheria carriers, and transfusion of blood.

It is noteworthy to what extent intravenous injections of various substances are used, these including quinine hydrochloride in varices, sodium carbonate in migraine and for the prevention of anaphylactic shock, calcium chloride for vomiting in tuberculosis, sodium salicylate in psoriasis and in rheumatism, antipneumococcal serum in pneumonia, extract of corpus luteum in the vomiting of pregnancy, and onabain in cardiac insufficiency. There is an excellent index in which the use of two kinds of type greatly facilitates reference to diseases and to remedies. We have, indeed, nothing but praise for this small volume, which has so rapidly found its public.

The title of the book has been criticised as not being sufficiently explicit, but even if the criticism were justified, there are obvious objections, as Dr. Cheinisse points out, to re-naming a book a year after its first appearance. E. M.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Thirty-second Session. Edited by OSCAR M. SCHLOSS, M.D. Vol. xxxii.

This volume contains thirty-nine original papers on clinical as well as physiological subjects.

In the first paper, "Segregation of Pneumonia," Thomas S. Southworth urges the importance of isolation of cases of pneumonia and brings forward some evidence of the infectious nature of the malady. Emmett Holt and Helen L. Fales contribute a very important paper on "The Food Requirements of Children" which they apportion as follows: Requirements for basal metabolism, for growth, for muscular activity and for the food values lost in the excreta.

The third paper is one on "The Ulcerated Meatus in the Circumcised Child" by Joseph Brennemann. The next paper, by W. P. Lucas and

B. F. Dearing, is on "Blood Volume in Infants estimated by the Vital Dye Method." They find that in the newborn the quantity of blood is 14·7 per cent. of the body-weight as compared with 8·8 per cent. of the body-weight in the adult, as found by Keith Rowntree and Geraghty by the same method.

Cowie and Parsons contribute a paper on "Studies on Blood Sugar," and Crozer Griffith one on "Acute Cerebro-cerebellar Ataxia."

Isaac A. Abt and I. Harrison Tumper write on "The Significance of Xanthochromia of the Cerebrospinal Fluid," and report a case in a premature (eight months' gestation) infant, in whom the condition was of hæmatogenous origin due to subpial hæmorrhage. A. D. Blackader writes a "Report on an Epidemic of Hæmorrhagic Diarrhœa due to *Streptococcus mucosus*." Henry Heiman contributes "A Study of Pneumonia in Infancy and Childhood during Recent Epidemics." Ramsey and Groebner write on "Further Progress in the Study of the Relative Efficiency of the Different Mercurial Preparations in the Treatment of Congenital Syphilis as Determined by the Quantitative Examination of the Mercury Elimination in the Urine." They find that 50 per cent. mercurial ointment rubbed into the skin twice a week is the most effective form of treatment. Grey powder is least efficient and must be given daily in large doses.

In "A Study of the Incidence of Hereditary Syphilis," P. C. Jeans and J. V. Cooke find that out of 1000 newborn infants of hospital and private patients in St. Louis in which they investigated the Wassermann reaction of the foetal blood and made histological examination of the placenta, 6 per cent. showed the presence of congenital syphilis at the time of birth, but that the incidence varies with the class of patient—from 1·5 per cent. amongst the white middle and upper classes to 16 per cent. amongst the poor negro classes.

E. C. Fleischner and K. F. Meyer report their "Preliminary Observations on the Pathogenicity for Monkeys of the *Bacillus abortus bovinus*."

Rowland G. Freeman records his results from "The Use of Fresh Vaccines in Whooping-Cough," and believes that he has met with some success both prophylactically as well as therapeutically. The same author also reports "A Case of Sarcoma of the Kidney" with metastasis in the lung.

Alfred Hand writes on "Dyspituitarism So-called," and H. J. Gerstenberger discusses "The Factor of the Position of the Diaphragm in Röntgen-ray Diagnosis of Enlarged Thymus." H. M. McClanahan reports "Six Cases of Pyloric Stenosis." Richard M. Smith reports "A Case of Portal Bronchitis in a Child 3 years of age." Godfrey R. Pisek describes "A Case of Cardiospasm" in a child aged 12 years. L. Emmett Holt reports a case of "Primary Sarcoma of the Thymus."

E. C. Fleischner reports a case of "Heart Displacement apparently due to Mediastinal Emphysema following Aspiration Pneumonia." D. M. Cowie writes on "The Duct Sign in Mumps." He finds that a red spot near the opening of Steno's duct is present in ninety-six of all cases of mumps.

The same author also reports "A Case of Priapism resulting from Rapidly Spreading Myxosarcoma." H. J. Gerstenberger gives "A Report of a Case of Anaphylaxis following an Intra-dermal Protein Sensitisation Test." Henry J. Bowditch writes on "Further Development of Infants' Hospitals." Charles Gilmore Kerley writes on "The Effort Syndrome in Children." Clifford G. Grulee writes on "Precipitins for Egg Albumin in Stools." A. Graeme Mitchell and Paul Lewis describe "Some Experiments to Determine the Persistence of Extraneous Bacteria in the Gastro-intestinal Tract of

Guinea-pigs as Influenced by Diet." DeWitt H. Sherman and Harry R. Lohnes write on "Lactic Acid Milk." Langley Porter writes on "The *Rôle* of Certain Anaërobies in the Intestinal Flora of Infants." Maynard Ladd writes on "The Boarded-out Child." Richard M. Smith gives a "Schedule for School Boys." Rood Tavlör writes on "The Fate of Subcutaneously Infected Red Blood-cells." He finds that only a small portion of the cells so infected in various blood conditions in young infants in whom the intravenous route was not convenient, reached the circulation although it is followed by a rise in hæmoglobin percentage.

Julius Parker Sedgwick gives "A Preliminary Report of the Study of Breast-feeding in Minneapolis." Charles Hunter Dunn and Samuel A. Cohen write on "Tuberculosis in Infancy." B. K. Rachford writes on "Congenital Under-development of the Right Side in a Three Months Old Infant," as well as on "Malnutrition from Under-feeding." B. Raymond Hoobler writes on "The Misuse of Milk." He believes that excessive use of milk in children over one year old is injurious. J. H. M. Knot writes on "Lesions in the Mid-brain." Lastly, H. J. Gerstenberger contributes an article on "Malt Soup Extract as an Antiscorbutic." W. M. F.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Vol. xxxiii, 1922. Pp. 386.

THE full report has now been published of the 33rd annual session of this Society, containing the text of the 39 papers read and discussed at the meeting, as well as of the five papers that were only read by title. The subjects cover a very wide range, including, indeed, most branches of pediatrics, physiological, pathological and clinical, and it is impossible here to do more than refer briefly to a few papers of outstanding interest. Among the various aspects of infant feeding that were discussed were the "Protein Requirements of Children," by Drs. Emmett Holt and Helen Falls; "A Critical Consideration of the Four-hour Nursing and Feeding Interval," by Dr. T. S. Southworth; "The Use of Thick Cereal Mixtures in Difficult Feeding Cases," by Dr. H. Dwight Chapin; "Some Remarks on the Elements of Diet in Infancy," by Drs. Crozer Griffith and A. Graeme Mitchell; and "The Functions of the Organic Factor as Exemplified by Cod-liver Oil," by Dr. P. G. Shipley *et al.*

In a paper on the seasonal variation of rickets Drs. Hess and Unger give the grounds for believing that hygienic factors, especially sunlight, rather than dietetic factors, play the leading *rôle* in the marked seasonal variation of this disorder, excellent results having also been obtained by the use of ultra-violet rays in bringing about calcification of the bones. Dr. Kenley discusses the question of malnutrition in children of the well-to-do, reviewing several case-histories, while Dr. F. Talbot writes on "Severe Infantile Malnutrition, illustrated by a new series of cases in whom the metabolism was obtained under basal conditions. Reports of various cases of exceptional interest are given, these including cases of meningitis due to the *Streptococcus hæmolyticus*, dwarfism associated with congenital heart disease, calcification of the skin in a child, encephalitis lethargica in a newborn infant, acute lymphatic leukæmia with lymphadenomatous changes in an infant of five months, and congenital atresia of the œsophagus.

The volume, which is under the Editorship of Dr. Joseph Brennermann, is instructive and full of interest, as will be seen from the above category, which by no means exhausts the list of noteworthy papers. E. M.

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THE
BRITISH JOURNAL
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CHILDREN'S DISEASES.

VOL. XIX.

OCTOBER—DECEMBER, 1922.

Nos. 226-228.

Original Articles.

PRE-NATAL HYGIENE AND PROBLEMS OF MATERNITY AND
CHILD WELFARE.*

By W. M. FELDMAN, M.D.,

Author of 'The Principles of Ante-natal and Post-natal Physiology.'

PRE-NUPTIAL HEALTH.

THE first and probably the most important point in connection with pre-natal hygiene is to choose one's parents. We know, of course, that there are many conditions which are transmitted from parent to offspring, *either* in that subtle manner which we call heredity, *or* as the result of certain pathological changes taking place inside the germ-cells of one or other parent, who may be suffering from certain microbic diseases or intoxications. We may take mental disease, epilepsy, certain forms of deaf-mutism, glaucoma, Friedreich's disease, albinism, hæmophilia, etc., as examples of true hereditary transmission, and syphilis as well as probably the effects of parental alcoholism on the offspring as instances of the second of the above modes of transmission. In all these cases a pre-nuptial health certificate on the part of each of the prospective partners would be a document of great eugenic value.

In this connection several problems suggest themselves. One is the question of sterilisation or segregation of those unfit to become parents; another is the question of consanguinity of marriage. As regards the

* Substance of a lecture delivered at the Royal Institute of Public Health on November the 1st, 1922 (Sir Frederick Mott, M.D., F.R.S., in the Chair).

first, my opinion is that segregation is both uneconomical and unphysiological and therefore unjustifiable, and as for sterilisation, the subject is too controversial to be discussed here. As regards consanguinity, I think I am right in saying that such marriages should only be discouraged if there is any undesirable hereditary trait lying latent or dormant in each of the intending partners. For instance, supposing two brothers, A and B, come from a family in which there is a tendency to mental disease, then it would not be wise for the children of A and B to intermarry. But supposing the family to which A and B belong to be perfectly healthy, but that, say, A's wife comes from a mentally unsound stock, then there would be no more risk for the children of A and B to intermarry than for them to marry outside the family. Moreover, if there is any very desirable trait in the family to which A and B belong, then it would be a eugenically most desirable thing for the children of these two brothers to intermarry with the object of perpetuating that valuable character.

THE GERMINAL OR RACIAL POISONS.

Syphilis.

Till very recently syphilis was generally believed to be the commonest cause of ante-natal death, but the most valuable and learned report of Dr. Eardley Holland to the Ministry of Health published early this year has deposed this disease from that unenviable position, and has placed it second on the list of causes of ante-natal mortality with a percentage figure of 16-20. Now, if we bear in mind the fact that there are close upon 140,000 annual ante-natal deaths in England and Wales, you will realise that 28,000 foetal deaths occur annually in England and Wales as the result of a cause which could have been prevented or ante-natally treated.

So much for the actual ascertained fundamental fact about syphilis and ante-natal life. There are, however, in addition several problems in connection with the subject which may appear to be of academic interest, but whose elucidation would lead to useful results in ante-natal and early post-natal hygiene.

Problems.—(1) Why do some expectant mothers who give birth to syphilitic infants give negative Wassermann reactions throughout pregnancy?

(2) Why should women who give birth to syphilitic infants have lucid intervals during which they may bear apparently healthy infants and then give birth to one or more syphilitic infants again?

(3) Why should Colles's law hold universally true, viz. that a syphilitic

infant will infect a hired wet-nurse but will never infect its own mother, even if the latter shows no clinical signs of syphilis and her blood gives a negative Wassermann reaction throughout her pregnancy?

The explanation offered by McDonagh and Amand Routh is that *Spirochæta pallida*, which is, of course, universally accepted as the cause of syphilis, may exist in the form of granules which McDonagh believes to be "spores" or the embryonic stage of the organism, but which others believe to be derived from the breaking up of the spirochæte. Be that as it may, it is suggested that these granules are carried by the head of the spermatozoon (which is too small to carry the spirochæte itself), and enter the ovum in the process of fertilisation. The ovum, therefore, becomes infected, although the mother may escape direct infection from her husband. The granules themselves are believed to be biologically inert but become infective after their development into the mature spirochæte—as they do after a certain variable period. The indirect infection of the mother from the foetus is believed to be prevented by the protective action of the ferments of the chorionic villi, which disintegrate the spirochæte in their attempt to pass into the maternal circulation.

On the other hand, in the cases where the woman bearing a syphilitic infant gives a positive Wassermann reaction the mother has been directly infected by her husband either before or during or after conception.

It has been found that in these latter cases spirochætes can be detected both in the maternal as well as in the foetal portions of the placenta, and if the chorionic ferment theory be true in the case of the Wassermann-negative expectant mother, it ought to be found that in such cases the mature spirochæte should be present in the foetal but not in the maternal portion of the placenta. This is a point which, as far as I know, has not yet been confirmed.

As regards Colles's law the explanation is easy in the Wassermann-positive cases, because in these cases the mothers have already been infected directly either before or during pregnancy and cannot therefore be reinfected. In the case of the Wassermann-negative mothers Routh believes that the spirochæte granules are present in the maternal portion of the placenta. After the birth of the child these granules develop into mature spirochætes—because the protective influence of the chorionic ferments has been removed—and thus infect the mother.

The criticisms which I have to offer on this very ingenious theory are:

(1) The existence of a granular stage in the life-history of the spirochæte is denied by many of the ablest bacteriologists, who believe the granules to be pure artefacts in the process of staining by Levaditi's method.

(2) There is no experimental evidence whatever to show that chorionic ferments have a destructive action on *Spirochaeta pallida* outside the body.

(3) Abderhalden has shown that the chorionic ferments do not disappear from the maternal tissues till fifteen days after labour, during which time it should therefore be possible for the mother to become directly infected by her infant.

This, therefore, is a subject upon which a great amount of useful research is most desirable.

The whole subject of pre-natal syphilis bristles with difficulties, for in addition to the problems I have just enumerated, there is the further fact that a positive Wassermann reaction in pregnant women has not necessarily the same significance as a similar result at any other time, since it has been shown that, at any rate during the early stages of pregnancy, there is an increased amount of lipoids (to which the Wassermann reaction is due) in the woman's blood.

Moreover, a negative Wassermann reaction in a man with a past history of syphilis is no definite guarantee that his offspring will be immune, although the wife may apparently escape infection. Hence not only are we faced with the old problem again, "When is a person with a past history of syphilis free to marry?" but there is the further problem, "How are we to deal with the unborn offspring of such a father?" Are we or are we not to apply antisypilitic treatment to the foetus in such a case? I know of a case where administration of an arseno-benzol preparation to an expectant mother with a positive Wassermann reaction resulted in death of the mother, and post-mortem no evidence of syphilis was detected. Again I have had a case very recently where an expectant mother, six months pregnant, showed typical condylomata ani and vulvæ which in all reasonable probability were syphilitic, and yet both her own and her husband's blood gave negative Wassermann reactions. How is one to act here in the best interests of the foetus?

In spite, however, of these difficulties the fundamental fact remains that ante-natal syphilis can in most cases be diagnosed and treated and a large number of foetal lives saved by proper supervision and treatment of the expectant mother.

Ballantyne, who has done more for ante-natal pathology and hygiene than any other person in this country, has, in a paper read at the British Medical Association meeting in Glasgow this year, given the following noteworthy statistics:

Amongst expectant mothers who suffered from syphilis there were 606 stillbirths per 1000 in those untreated and only 50·7 per 1000 in those supervised and treated,

Alcohol.

Whilst there are no two opinions with regard to the harmful effects of the *Spirochæta pallida* upon the life and welfare of the foetus, opinions are not altogether unanimous respecting the influence of alcohol on ante-natal life. According to most observers alcohol is as much a germinal or racial poison as syphilis, whilst others believe that the effects of parental alcoholism upon the offspring are negligible. The question is not a new one. In the time of the Talmud, *i. e.* nearly 2000 years ago, it was remarked by a certain Jewish philosopher that it was only the daughters of alcoholic parents who require the aid of artificial means such as cosmetics and massage, etc., for the purpose of beautifying themselves; there is no such need on the part of the daughters of abstainers! It was also believed at that time that conceptions occurring during states of inebriety result in mentally-deficient offspring.

Of recent years the subject has been investigated experimentally, pathologically and statistically in both animals and human beings. Féré, by injecting various alcohols into hen's eggs at different stages of incubation, found that he was able either to stop development altogether or misdirect it in such a way as to produce monstrosities. He further showed that these deleterious effects varied in intensity with the toxicity of the alcohol.* Similar results have been obtained by Raymond Pearl in his experiments on birds which he exposed to alcohol fumes. He found that whilst his controls produced about 23 per cent. of infertile eggs, the proportion of such eggs produced by his experimental fowls was 60 per cent. Stockard and Laitinen, experimenting with mammals, found a large proportion of abortions, stillbirths, malformations and nervous disease in the offspring, and Nicloux, experimenting on women as well as on animals, found that when mothers were given a strong dose of alcohol about an hour before delivery, analysis of the blood taken from the umbilical cord of the infant immediately it was born showed the presence of alcohol within it, proving that the drug passes from the maternal into the foetal circulation.

Pathological.—Bertholet by post-mortem examinations on human beings, and Kyrle and Schoffer by experimenting on dogs, demonstrated degenerative changes in the sexual glands of alcoholic subjects.

Statistical.—Ballantyne found a high correlation between anencephaly and a family history of alcoholism, whilst Bezzola and others have produced statistics to show that the products of conceptions occurring during times of inebriety, such as carnivals, etc., resulted in a large percentage of stillbirths and idiocy. On the other hand, there are some who maintain that the statistical evidence has no real significance, and

* See table on p. 112 of my 'Child Physiology.'

that the experimental findings in animals cannot be truthfully applied to man, because the amount of alcohol to which the experimental animals have been exposed is relatively greater than is ever taken by human beings. Thus Prof. Karl Pearson and Miss Elderton in the 'Eugenic Laboratory Memoirs,' no. xiii, showed that Bezzola's statistics are mathematically unsound, and claim that their own findings as published in their 'Memoir' no. x to the effect that there is no appreciable difference between the offspring of sober and intemperate parents are true. Also Prof. Stockard could not convince himself that alcohol has ever caused abnormal development resulting in deformities in the human embryo, although he admits that the offspring of alcoholic parents show a greater number of stillbirths and general debility as well as a large proportion of sterility. Stockard, indeed, maintains that parental alcoholism, by killing off the weaker ova in the various stages of their development, eliminates the unfit specimens and thus ultimately benefits the race. Such a contention, however, cannot be treated seriously from the point of view of pre-natal hygiene, because on the same line of argument we ought to shut up our general hospitals, demolish our isolation hospitals, destroy our sanatoria and encourage slums and overcrowding as well as everything that helps to increase general and infantile mortality. *Such a hygiene by elimination eliminates all hygiene!*

We may summarise what we have said about alcohol and ante-natal life as follows :

(1) The statistical evidence is of a contradictory nature—as indeed is the case with most statistics.

(2) The experimental and pathological evidence leaves no doubt that
(a) alcohol can and does pass from the maternal into the foetal circulation ;
(b) the alcohol when so transferred has a prejudicial effect upon the foetus.

Other Toxic Agents that pass through the Placenta.

In addition to syphilis and alcohol, it has been proved that morphine, nicotine and lead salts pass from the maternal into the foetal circulation, and have, therefore, an important bearing on pre-natal hygiene. Also the toxins of infectious diseases may pass from the mother to the foetus, even if the mother is herself protected by previous attacks or vaccination. Thus, according to Ballantyne, a pregnant woman who has smallpox may associate with cases of smallpox with impunity to herself, but with considerable risk to her unborn child. Conversely, vaccination of the mother may confer immunity upon the foetus. The passage of drugs such as mercury, salvarsan, etc., is important from the point of view of pre-natal therapeutics.

The Toxæmias of Pregnancy.

We come now to another important group of causes of foetal mortality, viz. the toxæmias of pregnancy, including eclampsia, pernicious vomiting, etc. The pathogenesis of these conditions is believed to be brought about by toxins coming from the disintegration of the uterine tissue, caused by ferments of the chorionic villi—ferments whose action is primarily intended for the purpose of facilitating the anchoring of the ovum at the placental site. These toxins, which are carried into the maternal circulation, are under normal conditions either destroyed by the liver or sufficiently neutralised by antibodies manufactured inside the mother's blood, and then eliminated by the kidneys, bowels and other excretory organs. Hence, if the liver or excretory organs are defective, a state of pregnancy toxæmia results with the death of the foetus by suffocation. Dental caries—which, by the way, is a frequent complication of pregnancy owing to the demand of the foetus for calcium—and pyorrhœa give rise to toxins which throw an extra burden on both the liver and kidneys, and hence great factors in the prevention of foetal death due to true toxæmias of pregnancy are attention to oral hygiene, correction of constipation and of renal deficiency by means of rest, diet, etc., and treatment of the condition as soon as diagnosed.

It is just in cases of this description that the provision of ante-natal wards in connection with all ante-natal clinics would be not only of immediate public health value, but in virtue of their affording legitimate opportunities for useful research would greatly increase our knowledge of this distressing complication of pregnancy, and thus help to eliminate all foetal and maternal deaths attributable to pregnancy toxæmias.

Nutrition through the Placenta.

Whilst on the subject of transference of substances from the maternal into the foetal circulation, it will be profitable to refer briefly to the passage of food material through the placenta. Considerations of an anatomical, physico-chemical and experimental nature make it quite certain that food substances never pass *directly* from the maternal into the foetal circulation. As to how such transference is effected is not altogether certain. (a) According to the *vitalistic* theory, the walls of the chorionic villi exercise a selective action upon the various blood contents, allowing them to pass into the foetal circulation in quantities required by the foetus at each stage of its development. (b) According to the *osmosis* theory all the substances pass from one circulation into the other in accordance with the laws of osmosis, *i. e.* from a higher to a lower concentration. The matter is not purely of academic interest, but has a considerable

practical importance from the point of view of contracted pelvis. If, for instance, the osmosis theory is correct, then it should be possible in cases of contracted pelvis so to regulate the mother's diet, that by diminishing the mineral concentration of her blood the size of the foetus and the softness of its bones could be so adjusted as to make it capable of passing through the maternal passages at full term without resorting to Cæsarian section or induction of premature labour. The following analyses of specimens of blood obtained simultaneously from the mother and from the umbilical cord, show that whilst in the case of certain substances their concentrations are the same in the two bloods, suggesting diffusion by osmosis, in the case of other substances the difference in concentration is great enough to support the vitalistic theory :

Nature of material.	Maternal blood.	Fœtal blood.	Remarks.
	Mgram. per 100 c.c.		
Amino-acid nitrogen	5.9	7.9	Against osmosis (difference = 33 per cent. <i>in favour of fœtus</i>).
Sugar	132	115	Difference = 13 per cent. <i>in favour of mother</i> ; probably osmosis.
Fats	1485	1085	Definitely against osmosis.
Non-protein nitrogen	25.2	24.9	Almost exact balance; = osmosis.
Excretory nitrogen .	17	16.6	Excretory products from fœtus to mother pass by osmosis.
Mineral substances .	713	741	Difference = 4 per cent. <i>in favour of fœtus</i> . Not decisive.
Immune bodies .	Equal concentration		Osmosis.

The subject is one upon which a vast amount of research is still necessary, although it may be mentioned that during the war, when many German expectant mothers suffered from scurvy, osteo-malacia, etc., as the result of lack of minerals in their food, the number of infants born with similar conditions was small, suggesting that salts pass from the mother to the foetus by the selective action of the chorionic epithelium.

INTRA-NATAL DEATHS.

Eardley Holland has shown that tears of the dura mater are responsible for a very large percentage of intra-natal deaths, especially in cases of breech presentation. This is a most important discovery from the point of view of preservation of fetal life, for both experimental work on animals* as well as clinical experience in the case of infants born during twilight sleep has shown that a newborn infant can remain apnœic for as long as twenty minutes without any serious consequences to itself owing to the

* *Ibid.*, p. 276.

reserve of oxygen in its tissues. Hence it is a mistake to expedite unduly the birth of an aftercoming head, because the risk of foetal suffocation from compression of the cord is very slight compared with that of intracranial injury. It further follows from Holland's findings that as far as possible breech presentation should be converted into vertex presentation before labour.

In this connection again research is needed to ascertain the amount of compression the foetal head can stand with impunity. I suggest that by attaching a dynamometer to midwifery forceps the amount of compression exerted in every case of forceps delivery could be measured and recorded.

SUMMARY.

(1) Pre-nuptial clinics should be established where persons of both sexes can get expert advice as regards their fitness to marry.

(2) No person knowingly suffering from syphilis should be allowed to marry, and breach of such a rule should be made a penal offence.

(3) Every person who has at any time exposed himself to the risk of contagion by venereal disease should be declared free from both syphilis and gonorrhoea before marriage.

(4) All cases of pre-natal syphilis should be thoroughly supervised and treated as soon as diagnosed.

(5) All expectant mothers should as far as possible refrain from alcohol (at any rate in excess) or excessive smoking throughout pregnancy.

(6) All expectant mothers should be protected from exposure to infectious disease or dangerous industries such as lead and phosphorus or tobacco factories.

(7) Attention to the teeth, bowels and kidney functions is of great importance during pregnancy.

(8) Careful watch should be kept of the relative size of foetus and maternal pelvis, and any abnormal presentation should be converted into a vertex before labour.

(9) Ante-natal wards or beds should be provided in connection with all ante-natal clinics for the purpose of treating abnormalities of pregnancy, as well as for the purpose of carrying out properly directed and well co-ordinated biochemical, pathological and statistical research.

THE SEVERE BLOOD DISEASES OF CHILDHOOD: A SERIES OF OBSERVATIONS FROM THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

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PART III.—PURPURA.

ANALYSIS OF CASES.

THE group of purpuras with which our paper is concerned contains ten cases in which the causation was obscure. Such are sometimes called examples of idiopathic or primary purpura, and we have excluded all cases associated with infectious diseases or other obvious cause.

For convenience we have divided this group into three sections:

The first, or purpura hæmorrhagica, is the most severe, and is associated with internal and external hæmorrhages and high fever.

The second, "Henoch's purpura," is characterised by sudden and recurrent attacks of abdominal pain, which may be of great severity.

The third contains cases in which there are subcutaneous hæmorrhages with little or no constitutional disturbance.

We believe that no dividing line can be drawn between these sections, and that they merge the one into the other.

The ages of the cases varied from 8 months to 9½ years, and the great majority were over 5 years.

The onset of the purpura was always sudden, but the duration varied; some of the cases had repeated attacks and were for years never free of some hæmorrhage.

The condition was a rare one, only ten examples occurring in three years. Once more we found that males were more often affected than females (at the ratio of 4-1), but in such a small series little importance can be attached to these figures in the face of the much larger series quoted by Holt and Thursfield, in which females preponderated.

In the introduction we have alluded to the question of the rôle of the blood-platelets in purpura hæmorrhagica. In our second case, kindly investigated by Dr. Bedson, of the Lister Institute, the number of platelets was reduced to 60,000 per c.mm. as against a normal of some 300,000.

Interesting and important though this subject of the blood-platelets undoubtedly is, we recognise that a reduction may also occur in some cases of anæmia gravis from deficient formation of megakaryocytes, and also in some cases of leukanæmia.

It would appear also that the essential point in the purpura formation is not the diminution of blood-platelets, but some poison acting upon the vital capillary walls, damaging their integrity.

ANALYSIS OF CHIEF SYMPTOMS.

The purpura varied greatly in degree: sometimes there were spots no larger than a "flea-bite"; again there might be extensive areas, and free bruising. The distribution was mainly on the buttocks, legs and arms; less frequently on the body, neck and face.

Hæmorrhages from the bowel, kidneys and nose were frequent, and might be copious and persistent, particularly from the kidneys. The urine was often claret-coloured, and contained blood-cells, blood-casts and leucocytes. *Hæmorrhages* in the tongue, in the cheeks and from the gums only occurred in the severe cases.

Hæmorrhages also occurred beneath the conjunctiva, from the stomach and into the wall of the larynx.

The *subperitoneal hæmorrhages* and *hæmorrhages into the intestinal wall* produce such remarkable symptoms that they have since Henoch's writings always attracted great attention. Our experience has entirely borne out the evidence of other writers as to the great difficulty of making a diagnosis from an acute appendicitis or intussusception. In a considerable number of cases in literature this has only been made after an unfortunate exploration. Great attention in such cases must be directed to the history, to the presence of any petechiæ or hæmorrhages from the nose or elsewhere, and to the tongue, which in these cases may be quite clean. A definite tumour may be felt through the abdominal wall, just as is the case in some examples of scurvy in infancy.

In some cases *pain* and *swelling of the joints* have attracted attention, and had usually preceded an outbreak of purpura.

Pyrexia occurs in the severe cases, and to a lesser degree in some of the milder ones.

In two cases there was a remarkable periodicity and regularity in the order of the appearance of the symptoms.

In one case the first events were a vomit and rise of temperature to 100° F. and 24 hours later the first appearance of purpura.

These cases of purpura were rather more frequent in the autumnal months.

The blood-picture was, as a rule, the following:

A moderate fall in the red cell count to about 4,000,000 per c.mm., a moderate increase in the leucocyte count up to 20,000 per c.mm., the differential count remaining normal.

In the fatal cases a great fall occurred in the red count, with a leucopenia and a gradual disappearance of the polymorphonuclear leucocytes.

The blood-platelets fell in number. The coagulation period did not appear to alter.

In some cases the blood-serum appeared to hæmolyse washed normal corpuscles, but not the patient's red blood-cells.

We could throw no light upon the ætiology from the histories of our cases.

The prognosis in the simple cases was good, but the fulminating examples of purpura hæmorrhagica were both rapidly fatal. Those of the Henoch type showed the well-known tendency to recurrence, and dragged on for some years. Treatment was unsatisfactory, apart from rest (*vide* section on treatment).

Section I.—Purpura hæmorrhagica.

There were two examples, both of which we give in some detail.

CASE 1.—Boy, aged 9 years. Admitted to hospital under Dr. Poynton on July the 10th, 1920, for "bleeding from the gums."

For three weeks the boy had been very fretful and quiet. Ten days later petechiæ appeared on the skin all over the body, and later "bruises" developed. About the same time bleeding from the gums commenced, which was worse in the night than the day, and shortly before admission hæmatemesis and melæna occurred.

The eyesight was not affected, but he had become slightly deaf, and had lost all appetite.

He was the youngest of three children, and there was no event in the personal or family history which threw light on this illness.

Condition on admission.—A well-built clever boy, he was very pale and his body covered with purpuric patches of various sizes and in different stages. From the gums there was persistent oozing of blood.

The premolar teeth were much decayed and the hæmorrhage from the gums most obvious at these points. The tonsils were large and there were petechiæ on them and the pharynx. The liver extended $1\frac{1}{2}$ finger-breadths below the costal arch, but the spleen was not palpable. The lymphatic glands were not enlarged. The pulse-rate was 108 per minute. The heart was not affected, but a faint hæmic systolic murmur was audible.

The respiratory and nervous systems were not affected.

The temperature on admission was 99·5° F. and rose to 100·8° F.

The blood-count was as follows: Red blood-cells, 1,760,000 per c.mm.; coagulation time, $6\frac{1}{2}$ minutes; hæmoglobin, 18 per cent.; colour index, 0·5; white cells, 1080 per c.mm.

Differential white count: Polymorphonuclear cells, 46 per cent.; small lymphocytes, 46 per cent.; large lymphocytes, 8 per cent.

No abnormal cells were seen. The urine was free from blood.

The diagnosis of purpura hæmorrhagica appeared the most probable.

The treatment decided upon was the subcutaneous injection of hæmostatic serum 2 c.c. at a time, and 10 c.c. of normal horse-serum. Turpentine was given by the mouth

in 10-minim doses. Improvement followed, the oozing from the gums practically ceased, and the purpura began to fade, the patient looking generally better. The treatment was steadily persisted with for a week.

Although there was this definite improvement the temperature remained raised, sometimes reaching 100° F., and there was occasional vomiting. On the seventh day a few fresh spots of purpura appeared, and from that date the condition grew worse. The pallor increased, and there was an icteric colour added and he was paler and weaker. The blood of his father, who was a powerful man, had been tested soon after his son's admission and he was found to be a universal donor, and his son also belonged to the same blood group. Accordingly it was decided to transfuse from the parent.

On July the 23rd, 1920, Mr. Twistington Higgins injected intravenously into the right saphena half a pint of citrated blood.

At the commencement of the injection the boy became restless and distressed and gasped for breath, the pulse remaining steady though rapid. Later he became drowsy, but coughed at intervals, and shivered. He passed a bad night, the temperature rising to 104° F. and his pulse flagging. The oozing from the gums persisted. That morning an extreme hæmoglobinuria developed and persisted most of the day. He failed rapidly, air-hunger supervened, and he died on the 25th, the temperature rising to 105° F.

Necropsy.—The heart was pale and fatty, and there were subserous petechiæ.

There was blood in the stomach, and submucous hæmorrhages in the intestines.

The liver showed areas of red necrosis and some slight cellular infiltration round the portal canals. There was much fatty change. The kidneys showed subserous petechiæ. The bone-marrow was pale but not watery.

The other organs showed no changes of note.

The great interest in this case was the sequence of events at and after the transfusion.

Though both parent and son belonged to the same blood group, it was evident at the time of transfusion that the child was disturbed by the injection. This disturbance was not great, for he was under an anæsthetic, and it was realised that the boy was very ill. Nevertheless the restlessness and gasping for breath at the outset were distinctly alarming. Throughout the time he had been in the ward previous to transfusion there had been no sign of any blood in the urine, but it is clear that the effect of the transfusion was to produce a hæmoglobinæmia of great severity.

We could compare this unfortunate event with Porter Parkinson's experience in the case we have already quoted under the section upon anæmia gravis.

CASE 2.—Male infant, aged $1\frac{2}{3}$ years. He was admitted for "bruises," blood in the urine and bleeding from the mouth under Dr. Poynton on March the 3rd, 1921.

There was an eleven days' history of these symptoms.

The family history threw no light on the condition.

The history of diet since birth was as follows: Breast fed for five months, glaxo for four months, Savory and Moore's food four months. During the last month has taken milk, potato, gravy, and bread and butter.

The illness began with a cough and bronchitis, from which the child was apparently recovering when, on February the 21st, red spots appeared on the cheeks, then on the legs and elbows. On the 28th bleeding from the mouth commenced, and on March the 2nd blood appeared in the urine. The child took food well, and appeared in other respects in fair health.

Present state.—March the 3rd: A plump child with extensive purpura on face, arms and legs. The gums showed some purple discoloration at the bases of the incisor teeth. There were no subperiosteal hæmorrhages, but the child cried when moved. The urine was deep red with blood. The pulse was rapid—140—but the heart showed no lesion, neither did the lungs.

The abdomen was natural, and the liver and spleen were not enlarged.

The child was treated dietetically on the lines of a scurvy, and 2 c.c. of hæmostatic serum injected.

The blood in the urine diminished, but the temperature, which on admission was normal, rose gradually to 104° F. on the 7th, and the child was listless, weak, and showed increasing pallor and great illness.

Dr. Bedson, from the Lister Institute, kindly undertook a blood-platelet count and reported as follows: (1) Bleeding time increased; (2) platelets, 60,000, as against the normal 300,000; (3) blood-platelet ratio, 53·5 as against 9·5. He considered it a case of purpura.

On March the 8th the child became much worse, and large blue areas appeared along the whole length of the spine. He appeared by his pallor and restlessness to be bleeding internally, and died that morning.

A partial necropsy only was permitted, and, except for numerous subserous petechiæ, nothing was discovered throwing light on the condition.

In these cases the question of scurvy is apt to arise, and particularly where, as in the second case, the patient is an infant. A careful inquiry into the history and the extensive subcutaneous hæmorrhages, with the diminished platelet account, served to distinguish the nature of the illness from scurvy.

An Example of Henoch's Purpura.

Boy, aged 7½ years, admitted under Dr. Robert Hutchison in June, 1920.

Had previously had measles and whooping-cough.

The complaint was bruising and purpura for the past nine months. On admission he was a healthy-looking child; small, petechial hæmorrhages were present over the trunk and extremities. He tended to bruise very easily. There was slight oozing from the gums. At fortnightly intervals this child vomited, his temperature rose slightly, and the following morning much purpura appeared on the body, arms and legs. During one of these attacks he had severe abdominal pain, a rise of temperature to 102° F., a rapid pulse tenderness in the right iliac fossa on palpation. In this phase the case might easily have been mistaken for one of acute appendicitis had he not been known to be a case of Henoch's purpura. This attack subsided in ten days. At his next attack a hæmorrhage occurred into the wall of his larynx, causing acute dyspnœa. He was discharged, having been in hospital for nine months, during which time these attacks continued to occur at fairly regular intervals. The blood picture showed no characteristic change. His serum seemed slightly hæmolytic to normal washed corpuscles. Seen a year later, he still showed many purpuric areas, and tended to bleed from the gums. He also had recurrences of abdominal pain.

An Example of a Simple Purpura.

Boy, aged 9½ years. Admitted under Dr. Hutchison in September, 1920.

When five years old he had whooping-cough; at six years hæmaturia, at seven measles. Six months previously he had passed blood in his urine. No purpura was noticed. A week ago purpuric spots the size of a half-crown appeared on the legs and arms, especially over the buttocks. His urine was bright red.

On admission large purpuric patches were noted on forearms, legs, and buttocks, but no blood was present in urine. The coagulation time of the blood was normal. The fragility was not increased. There was no pyrexia. The respiration and circulatory system were normal. The purpuric areas rapidly faded, and he was discharged cured in a month.

TREATMENT.

Advances in the treatment of severe anæmias in childhood are slow, and this series of cases shows clearly enough that the leukæmias when they come under our care are uninfluenced by any of our methods, and usually die rapidly.

Arsenic seems at this early age to be less effectual in producing temporary improvement than in the adult, and one experience of X-ray applications was not encouraging.

Benzene was ineffectual.

The only light at present is provided by those cases in which remarkable though temporary improvement occurs, but when we inquire into the circumstances that accompanied this improvement we find that it has not been the result of any special measures, but, on the contrary, supervened when no active attempts at treatment have been made. The fact itself, however, shows that there must be some natural effort at cure, and this attempt by Nature must have some explanation.

The value of *rest* in all forms of anæmia was apparent, and in the severe cases which eventually recovered it was obvious that premature exertion retarded their progress and recovery.

Warmth is another factor. We found open-air treatment in the colder months did not suit these cases, although when they were fairly on the road to recovery we had hoped this treatment with proper precautions would have been of value. It would appear that any strain on the resources of these patients, which in other convalescents might prove stimulating, caused a disproportionate injury to the blood.

A search for a *local cause* is as necessary in the child as in the adult, but it has been our experience in the worst cases to find very little assistance from such an inquiry. The occurrence of respiratory affections antecedent to a considerable number of the most severe cases did not lead to the discovery of any therapeutic indications, nor did active treatment of the attacks of sore throat which occasionally developed in the cases of leukæmia appear to influence the course of the disease.

Diet was of value in chlorosis and secondary anæmia, but of no avail in the primary anæmias.

One of the most striking observations upon the results of treatment that came under our notice was the danger of blood transfusion in anæmia gravis and purpura hæmorrhagica—an experience also met with by Porter Parkinson in his case quoted above. Although the usual precautions were taken as to the blood grouping of the donor and recipient, there resulted active hæmolysis with the most urgent symptoms. It would seem that in these patients there is some blood fault not to be

discovered in our present state of knowledge until the transfusion is done—and then it is too late. We have abandoned this procedure in anæmia gravis, leukanæmia and purpura hæmorrhagica.

Intestinal disinfectants were ineffectual in the grave anæmias, as was also hæmostatic serum.

Antimony tartrate for lymphadenoma, though in one case seeming to do good, was, in the next, a complete failure.

There is, however, a brighter side to the picture than this, when we come to other forms of anæmia.

Among the cases of acholuric jaundice one child who had failed to react to medicinal treatment and was steadily losing ground made a good recovery after splenectomy, and has up to the present remained in good health.

Cases of rickets with severe anæmia responded well to antirachitic and hæmatinic treatment.

Similarly cases of von Jaksch's disease with rachitic symptoms could be much improved, and with patience and care these cases slowly recovered unless of exceptional severity.

Chlorosis also responded in childhood to persistent treatment by rest, diet and iron, but in severe cases the treatment took many months to complete the recovery, and if this was stopped prematurely there was relapse.

If syphilis is responsible, a mixture of perchloride of mercury, perchloride of arsenic and perchloride of iron will be very helpful if it is well borne.

The removal of septic foci in the tonsils, gums and elsewhere will certainly assist the recovery from secondary anæmias.

It is clear that our failure in the treatment of leukæmia was dependent upon our ignorance of the essential nature of this disease. We do not yet understand the meaning of the profound changes in the blood in this disease, and are at a loss as to what lines to adopt either to prevent its development or to arrest its course.

It was also clear that in anæmia gravis we were defeated by the total lack of reaction to all measures in the worst cases, but the exact diagnosis is so difficult that in every case there is encouragement to leave no stone unturned to combat this form of anæmia, as our third case clearly proved.

THE PEL-EBSTEIN TYPE OF HODGKIN'S DISEASE.

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IRREGULAR pyrexia is common in Hodgkin's disease. The late Sir F. Taylor ('Guy's Hosp. Rep.,' 1906, lx, p. i) mentions various types of fever in this affection, viz.—(1) continuous, with slight diurnal variations; (2) alternating periods of fever and normal temperature; (3) daily variations of temperature in excess of normal limits; (4) mixed types in which at different times the above variations occurred. Pel and Ebstein, in 1887, independently described the recurrent or relapsing type—obviously only one variety of the fever which occurs in these cases. It is infrequent at all ages and decidedly rare in children. MacNalty has reported a case at 3 months and another at 8 years of age. Murchison's patient was a girl, aged 6 years.

The case now reported is that of a girl, aged 8 years on admission to the Metropolitan Hospital, where she remained under my observation until her death six months later. Strictly speaking, it should be classified under Taylor's fourth group, but the recurrent relapses in the later period of her illness were definitely of the Pel-Ebstein type. The peculiar grey-yellow or icteroid tint of the skin, first described by Pel, was very well marked.

The characteristic features of the illness can be summed up as follows: A prolonged local stage of glandular hyperplasia in the neck and a generalised stage of pyrexia, which assumed a relapsing type, severe and progressive anæmia, a yellowish-grey tint of the skin, enlargement of the cervical glands, liver and spleen, slight bronchitic attacks with breathlessness, sometimes semi-delirium, erythropenia and leucopenia, and a fatal issue. There was no evidence of tuberculosis—an alternative diagnosis—and the Pirquet reaction was negative. Unfortunately no post-mortem examination was obtained.

For a period of three weeks the fever was of the common irregular type, maximum 102·4° F. During the next week it kept fairly well at about the normal level, and in the next eight weeks there were roughly alternating weekly periods of higher and lower temperatures. From January onward the relapses took the more definite form of a fortnightly periodicity, though not absolutely regular. Each such attack of fever resembled the common type of relapse in an enteric fever and lasted about a fortnight. The 12-hourly chart showed a step-like rise of temperature for 4 or 5

days, a period of maximum temperature for 4 to 7 days, and a fall by lysis. Some of the relapses were preceded by apyrexia for about a week. From March the 3rd to April the 2nd the attack of fever was more irregular and prolonged, and suggestive of an intercurrent relapse. The final bout followed 12 days' apyrexia and showed the step-like rise in its most marked form. It lasted two weeks, and was subsiding by lysis in the usual way when the child succumbed from exhaustion. So suggestive was the course of the temperature of one of the enteric groups of fevers that it was deemed necessary to try agglutination tests in order to exclude the possibility of such a causation; the results proved absolutely negative.

CLINICAL ABSTRACT.

Ivy R—, aged 8 years, was admitted to the Metropolitan Hospital on October the 14th, 1921, and died on April the 28th, 1922. She was the youngest of eight children, all of whom were said to be delicate and have weak chests. The father was stated to be phthisical. According to the mother, the child had always been delicate and under medical advice for enlarged glands in the neck. In 1916 she had diphtheria and was in hospital for nine months. In 1918 the glands became much larger, and open-air treatment was recommended by a London surgeon. After this they varied in size from time to time. In January, 1921, she went to the Margate Sea-Bathing Infirmary, and in February a gland was removed, which was said to be lymphadenomatous. Although getting weaker, she remained there until June, and had lived an invalid life since. On the advice of Mr. Homi she was brought to the hospital. Her chief symptoms have been variable appetite, frequent nausea, constipation, increasing anæmia, abdominal enlargement and loss of weight, and cough for 14 days.

Condition on admission.—Good nutrition, marked anæmia and a yellowish-grey tint of the skin; clean tongue and good teeth, no pyorrhœa; enlarged glands in both sides of the neck, especially on the right side, which shows the scar of the operation. No adventitious sounds in the chest, save hæmic murmurs, and no evidence of enlarged thoracic glands; a somewhat distended abdomen with moderate enlargement of the liver and spleen.

Course.—Although under observation for a long period, there is comparatively little to note in reference to the symptoms. The chief features of the case were the progressive anæmia, the pyrexia and the blood-counts. The glands in the left side of the neck became quite small soon after admission, and did not again increase in size. Those on the

right side became smaller, but they enlarged from time to time, though not always with the pyrexial attacks. The spleen was never very large. On October the 21st it extended $1\frac{1}{2}$ in. below the costal margin, and it was both larger and harder ten days later. After this it became smaller. On January the 8th there was a sudden attack of pain in the splenic region, with tenderness and friction, but no apparent increase in size. The pain continued more or less for ten days, and was probably due to thrombotic infarction. On January the 27th a relapse was in full blast, but there was no increase discoverable in the size of the glands or spleen. During February there was subconjunctival hæmorrhage in the right eye, and in March an attack of herpes labialis and occasional slight epistaxis. The final attack of fever began on April the 13th, and the glands became larger, though not as big as on admission. Epistaxis was severe on April the 25th, and a rigor occurred on April the 28th shortly before death.

Beyond these signs there was nothing to note save the increasing anæmia, the tint of the skin, slight bronchitic attacks, with a few crepitations in the lungs, and some delirium during two of the febrile relapses. The liver did not increase in size. Throughout the illness the child's appetite was good, sometimes enormous, except at intervals. Even during pyrexial stages it was occasionally excessive, though it generally failed at these periods. The weight varied comparatively little. On admission it was 40 lbs., and between November the 25th and March the 14th it varied between 42 and 43 lbs. On March the 21st, the last weighing, it was $41\frac{1}{2}$ lbs.

For the reports on the blood I am indebted to Dr. J. Andrew, Pathologist to the hospital. No growth was obtained by culture.

Blood-Counts.

Date.	Red cells.	Hb per cent.	C.I.	White cells.	Poly-morphs.	Lymphocytes.	Large mono-nuclears.	Eosinophils.	Basophils.
1921.									
Nov. 17 .	1,600,000	29	0·8	5000	3125	1700	100	62	13
Dec. 9 .	1,750,000	25	0·7	4000	2210	1640	120	20	10
„ 30 .	1,250,000	26	1·0	4000	2320	1480	140	20	40
1922.									
Jan. 10 .	1,400,000	20	0·7	2500	1513	862	112	13	0
Feb. 1 .	1,100,000	13	0·6	2000	600	1320	68	20	0
„ 17 .	—	—	—	2200	748	1364	88	0	0
April 3 .	1,270,000	18	0·7	3400	1751	1513	68	51	17
„ 15 .	1,000,000	15	0·7	1700	884	765	51	0	0

Relative Percentages of Polymorphs and Lymphocytes.

	Nov. 17, 1921.	Dec. 9.	Dec. 30.	Jan. 10, 1922.	Feb. 1.	Feb. 17.	April 3.	April 15.
Polymorphs	62·5	55·25	58·0	60·5	30·0	34·0	51·0	52·0
Lymphocytes	34·0	41·00	37·0	34·5	66·0	46·0	44·5	45·0

The obvious features are the profound and increasing anæmia and the leucopenia. The reduction of red cells to one million per c.mm. exceeds that in MacNalty's boy, 8 years old, in whom the number fell to $1\frac{1}{2}$ million and the hæmoglobin to 10 per cent. Even lower counts have been recorded in children. Dr. J. Porter Parkinson showed at the Children's Section of the Royal Society of Medicine in April, 1919, as a case of recovery from aplastic anæmia, a boy in whom the blood examination at one time had yielded only 580,000 red cells and 2600 white cells, of which 76 per cent. were lymphocytes (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1919, xvi, p. 1).

It is noteworthy that the number of white cells fell progressively, except for the increase noted on April the 3rd, two days after a prolonged attack of fever. Possibly this was due to a final attempt at recovery. On February the 1st, at the end of an apyrexial period, on February the 17th, during the middle of a relapse, and again during the final attack, the number of polymorphs were greatly decreased, whereas the number of lymphocytes remained fairly constant. I cannot account for the relative differences noted on January the 10th, at the end of a course of sodium cacodylate injections, and during the attack of pain in the splenic region. No myelocytes or nucleated red cells were found, and the red cells present appeared normal.

GENERAL REMARKS.

Hodgkin's disease (lymphogranulomatosis maligna) was defined by Ziegler in 1911 as a specific granulomatous affection with a special predilection for the lymphatic tissues at first. There are various clinical types, described as acute, local, generalised, splenomegalic, like mediastinal tumour, and like typhoid. Undoubtedly there are two definite stages. The first stage is local and generally glandular, and varies in duration from weeks to years. In this child the glands had been enlarged for years. About half the cases begin in the cervical glands, and next in order of frequency in the axillary, supraclavicular and inguinal glands. About 10 per cent. begin in the spleen and a similar proportion in the mediastinal, retroperitoneal or other internal glands.

The stage of generalisation is characterised by fever, anæmia and cachexia, an enlarged spleen in two-thirds of the cases, localised, and sometimes wide-spreading glandular enlargement, with leucopenia and blood of the type of secondary anæmia. The other organs affected include the bone-marrow, kidney, liver, pancreas, and sometimes the skin and intestinal tract.

The fever is suggestive of an infective origin of the disease, but, so far, there is no reliable evidence thereof. In this patient no local focus of infection could be found, and blood cultures were negative. As a rule, the pyrexia is an added phenomenon to a local disorder, generally glandular. Parkes Weber regards it as indicative of a stage of dissemination or generalisation of the disease—a kind of “septicæmia of Hodgkin’s disease.” In view of the periods of apyrexia, sometimes prolonged, this is an unsatisfactory view. It is more reasonable to ascribe the pyrexial bouts to localised necrosis of lymphadenomatous tissue and toxic absorption. Weber found areas of centro-acinous necrosis in the liver and pancreas of his fatal case (‘Proc. Roy. Soc. Med.,’ 1916–1917, Clin. Sect., p. 42). The occurrence of the attack of pain in the splenic region during one febrile relapse in this child affords some support to this hypothesis, if it was due to local necrosis in the spleen. In other words, the fever is merely a sign of the secondary necrosis and the primary origin of the disease awaits discovery.

Treatment proved absolutely unavailing, though it may have prolonged life. Arsenic and reduced iron were given by mouth, sodium cacodylate and colossal manganese intramuscularly, antimonium tartrate, gr. $\frac{1}{4}$ in 2 c.c. normal saline intravenously, and hæmoplastin for the epistaxis. The greatest improvement in the child’s general condition followed the daily administration of an ounce of brandy.

CEREBRAL HÆMORRHAGE IN A NEWBORN CHILD.

By C. F. T. EAST, M.A., B.M., B.Ch.Oxon., M.R.C.P.Lond.

A MALE infant was born in the Labour Ward of King’s College Hospital at 12.55 a.m. on Saturday, July the 22nd, 1922. The mother was healthy and had had a normal pregnancy. She had had one other child three years before, now a healthy boy. The baby was full time, and labour was easy, lasting 2 hours 20 mins. The presentation was L.O.P., turning to L.O.A.; no instruments were used, nor was there any holding back

of the head during delivery. Weight at birth was 6 lb. 10 oz. Just after birth two bluish marks were noticed on the left shin.

On Saturday afternoon the mother remarked that the baby did not seem to take the breast very well, and the nurse thought that it had a peculiar cry. It had scratched its face, and the small mark bled very freely. During the evening it would not suck at all, and a blood-stained froth came up into its throat. Its temperature was then 96° F.

At about 7 p.m. it looked very grey. During the night it seemed very ill, and at about 6 a.m. it went a very bad colour, though afterwards it became markedly flushed.

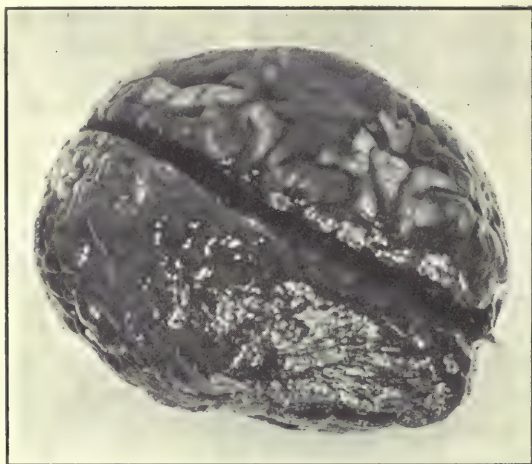


FIG. 1.—Upper surface of brain.

A hypodermic injection of strychnine was given about this time, and afterwards it went rigid, holding its head turned to the right.

At no time did it vomit, nor was there any actual fit or convulsion. Respirations were gasping, and it twitched its arms and legs at times.

There was a little oozing from the cord. Normal meconium was passed.

The fontanelle was now noticed to be tense. There were purpuric spots on both legs, and also on the backs of the arms and right scapula.

The respirations were gasping.

When seen about 11 a.m. on Sunday morning the baby was very white.

The temperature was 96° F., and it was drawing gasping breaths at intervals of about a quarter of a minute. The eyes were half closed and seemed rather bulging. It lay limp in the basket, making occasional jerky movements with its arms. The fontanelle, indeed the whole

skull, was extraordinarily tense, showing a very high intracranial pressure.

No pulse could be felt at the wrist or fontanelle, but the stethoscope showed it to be 164. The heart-sounds were faint, but normal. The breathing did not allow any signs to be made out in the lungs. Blood-stained froth was wiped from the pharynx. Blood was oozing slightly from a point just below the junction of the cord. Patches of purpura were on the shins (about 4 mm. in diameter) and on the back of the arms and shoulders; some of the spots were mere petechiæ. No knee-jerk was obtained.

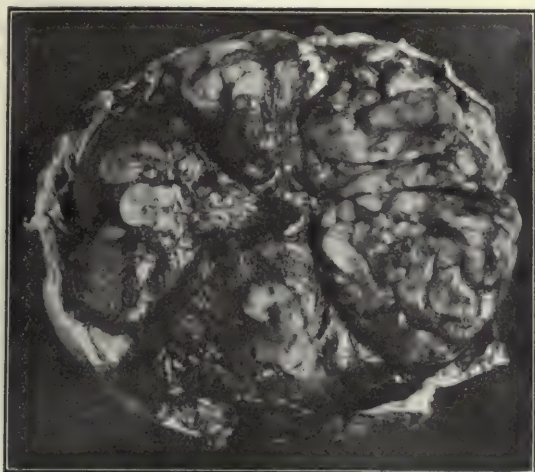


FIG. 2.—Lower surface of brain.

With the ophthalmoscope it was seen that the retinae were covered with hæmorrhages.

The baby died in about a quarter of an hour.

There is absolutely no history of any hæmorrhagic tendency in the family.

Autopsy.—Patches of purpura and petechiæ were seen as described above.

Both lungs were covered with scattered hæmorrhages, mostly about the size of a threepenny-bit. These hæmorrhages extended into the lung. There was nothing abnormal about the parietal pleura.

The pericardial sac contained a normal amount of fluid; at the base of the aorta and the pulmonary artery were two purpuric spots. Under the visceral pericardium there were a few scattered petechiæ; the parietal pericardium was normal. The thymus was normal.

The bronchi and trachea contained a little blood-stained froth.

The peritoneum showed no abnormality, and there was no blood in the intestines or stomach. The liver, spleen, kidneys and suprarenals were natural. There was no blood in the bladder.

The caput succedaneum was not abnormal, but some blood had effused under the pericranium of both parietal bones. On opening the dura mater a great deal of blood escaped; on removal blood and clots were seen all over the surface of the brain, extending everywhere round the base down into the spinal canal. The photographs give an idea of the extent of the hæmorrhage. No bleeding had taken place into the substance of the brain itself or into the ventricles. There was no injury to the meninges, and no source of the blood could be found.

It is unfortunate that there was not time to examine the blood before death.

A microscopical section of the lung showed that it was well expanded, and that in places the alveoli contained blood.

In this case one cannot easily explain all the hæmorrhages by trauma. Of course, there must have been some strain on the child during the birth process although labour was so easy. The ocular hæmorrhages may have been caused at this time. Koenigstein (4) found hæmorrhages round the optic disc in 10 per cent. of the cases he examined. Schlich (7) found them in 30 per cent., and Sicherer (8) in 20 per cent. The last observer states that they have no relation to hæmorrhagic disease, and traces a relation between the presentation and the eye affected. They occur more frequently in large children, and when forceps have been used. Von Reuss (6) agrees that the strain of the birth process is the cause.

Such extensive bleeding into the meninges of apparently spontaneous origin seems rare. Trauma, such as forceps delivery, is usually the cause, according to Spencer (9). Green and Swift (2), in a series of 51 cases found meningeal bleeding in 2 only, and they were not extensive. In a series of 32 cases Townsend (10) found none at all.

Bleeding into the lungs occurred in no case of these series, while Kilham (3) found small purpuric spots in the lungs in one case in ten.

Umbilical hæmorrhage is most common in these conditions. It occurred in each of Tuley's (11) 38 cases. Abt (1) has reported 13 cases of spontaneous hæmorrhage in the newborn, each of which showed purpuric skin lesions such as are described above.

One can hardly account for the bleeding in this case by trauma alone, unless there were present already a condition of the blood or capillaries which would predispose towards it.

The purpuric spots point to the presence of some such change.

The persistent bleeding from the small scratch on the face is similar to the free bleeding from a small wound in purpura. Larrabee (5) found a distinct family history in 37 out of 38 cases which he classes as hæmophilia in the newborn. Extensive inquiry has shown nothing in the family history here, though in the absence of the coagulation time one cannot exclude it. There is no positive evidence of infection; one can only class the case as one of hæmorrhage, due to changes in the blood or capillary walls, possibly as a result of infection or toxins. Very slight trauma may have been enough to cause bleeding under such conditions in some of the organs; in others it would appear to have been spontaneous.

My thanks are due to Dr. Hugh Playfair for his kind permission to publish this case, which occurred in his ward.

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Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, March the 24th, 1922.

The President, SIR ROBERT JONES, K.B.E., in the Chair.

Specimen from a Case of Aneurysm of the Ductus Arteriosus.—Dr. ROBERT HUTCHISON (see BRITISH JOURNAL OF CHILDREN'S DISEASES, 1922, xix, p. 85).

Dermato-polyneuritis (Acrodynia; Erythrædema).—Dr. HUGH THURSFIELD in collaboration with Dr. DONALD PATERSON (*ibid.*, p. 27).

Erythrædema.—Dr. F. PARKES WEBER (*ibid.*, p. 17).

Case of Double Inguinal Hernia in which Both Sacs were removed through a Single Transverse Suprapubic Incision.—Mr. PHILIP TURNER showed a boy, aged 2 years and 2 months, who had been admitted to hospital for double inguinal hernia. At the operation a transverse incision, about 3 in. in length, was made 2 in. above the pubes. The sheath of the rectus was exposed, and the skin and superficial tissues were undercut, so that on retraction the aponeurosis of the external oblique was exposed on either side as far as Poupart's ligament. The left side, on which the hernia was the larger, was first dealt with. The method employed for the removal of the sac was that described by Mr. Turner in 1912 (see *BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1912, ix, p. 123). An incision was made through the external oblique, over the internal abdominal ring, and the lower margin of the internal oblique was then drawn up so as to expose the sac and the spermatic cord just below the internal ring. After these structures had been freed and drawn through the incision in the external oblique, the sac was separated from the cord and isolated up to the internal ring. Below it was found to be continuous with the tunica vaginalis, so that after it had been ligatured above a second ligature was applied where it joined the tunica vaginalis and the intervening part removed. The testicle, which had been pulled up into the wound, was then pushed back along the inguinal canal into the scrotum, and the incision in the external oblique was closed. The superficial tissues were then retracted to the right, and a terminal sac of considerable size, but not continuous with the tunica vaginalis, was removed by the same procedure as that employed on the opposite side. The advantages of the operation were that the wound was well away from the groin, and that it was in a favourable position for subsequent dressings and nursing. The incision was particularly useful for those cases in which there was a definite hernia on one side, while on the other there was perhaps a slight swelling or a doubtful history of the occasional appearance of such a swelling. In that case the hernia could be treated and the other inguinal canal could be explored for the presence of a sac.

Case of Exophthalmic Goitre.—Dr. E. BELLINGHAM SMITH showed a girl, aged 13 years and 9 months, who had been taken to a throat hospital a year ago for some difficulty in swallowing. There was a swelling in the neck, and three months later exophthalmos developed. She now had exophthalmos, a large goitre and a pulse-rate of 120 to 140, was nervous and emotional, and had attacks of palpitation. There was a fine tremor of hands.

Specimens from Case of Obesity.—Dr. E. BELLINGHAM SMITH and Dr. R. DONALDSON related the subsequent history of the case shown at the last meeting (see *BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1922, xix, p. 146). The patient was admitted to hospital to see if, like a diabetic, he would react to starvation diet; the result was that on the fifth day of this diet there was no reduction of the sugar, and there was a large increase in the diacetic acid and acetone. He was threatened with diabetic coma and became drowsy, so he was put back on full diet. He recovered for three or four days, then had convulsions and died.

Necropsy.—There was an incipient moustache and the hair had a feminine distribution. On the trunk, at the level of the umbilicus, the fat had a depth of $2\frac{1}{4}$ in. There were dilated veins and multiple small hæmorrhages

under the skin. The brain weighed 2 lb. and the pituitary gland appeared to be normal; its weight was 0.65 grm.; the pineal gland was small—weight 0.068 grm. No macroscopical lesion was discovered. No thymus could be found, but an enormous pad of fat covered both lungs. The aorta was hypoplastic. The suprarenals were slightly larger than normal, and their weights were respectively—right, 12.5 grm.; left, 13.5 grm., very soft and flabby. There were no cortical nodules. Near the hepatic flexure there was, in the transverse meso-colon, a small nodule, half of which had been exhibited. It was firm, and on section it was seen to consist mainly of blood. There was no yellow mottling. There were pale areas of degeneration and necrosis. The section shown was that of the cells that had been least damaged. Extending from the nodule upwards over the superior surface there was a quantity of brownish fluid, and adherent to the liver, greyish, putty-like material—evidently altered blood-clot. A similar but smaller nodule was found near the head of the pancreas, but not in it. The pancreas itself showed pale areas of necrosis, and in the fat round the pancreas were areas of fat necrosis. The testicles were infantile and weighed 2.5 grm. each. They showed considerable fibrosis, very few interstitial cells, and no evidence of spermatozoa formation. Dr. Bellingham Smith agreed with Dr. Parkes Weber that it was a case of hypernephroma growing from an accessory suprarenal.

Case of Hemiplegia.—Mr. B. WHITCHURCH HOWELL showed a boy, aged 11 years, who had had traumatic hemiplegia probably when he was born. His previous history was not available. When brought to Mr. Howell for right hemiplegia he showed a depressed fracture on the left side of the skull. He was intelligent, and appeared to have no fits. Re-education was first tried, and then the depressed fracture was removed in November, 1921. There had been distinct improvement since, but there still remained a definite hemiplegia of the right upper limb which required correction. Mr. Howell proposed to divide a certain portion of the fibres of the median nerve going to the pronator radii teres, and to explore the musculo-spiral nerve to see if he has apparent paresis of the extensors of the wrist and fingers. If so, instead of dividing some of the motor nerve-fibres going to the flexors of the fingers, Mr. Howell proposed to transplant one or more of the flexor group to the extensor aspect of the wrist and fingers, to give the boy the power to dorsiflex the wrist and fingers.

Case of Hydatid of Pleura and Lung in a Boy, aged 8 years.—Dr. R. C. JEWESBURY.—The patient had been sent to hospital with a history of having had a “chill” about five months ago, and afterwards he complained of pain in the back and chest. Two months ago he was seen by his doctor, who diagnosed “congestion of lungs” at left base; this was thought to be followed by empyema and he was sent to hospital. When first seen in hospital he appeared to be well nourished but rather pale. Respirations 28, pulse 92, temperature normal. There was a large area of dullness at the left base with some pleural friction in the upper part of the left axilla. The heart was slightly displaced to the right. Breath-sounds, vocal resonance and fremitus were diminished over the dull area. The note on percussion was impaired as were also the breath-sounds over a fairly large area at the right apex. The left chest was explored and a syringeful of a perfectly clear colourless fluid looking like water was with-

drawn. Blood examination: Red cells, 4,250,000; hæmoglobin, 64 per cent.; colour index, 0·8; white cells, 5680; polymorphs, 60 per cent.; eosinophiles, 6 per cent.; lymphocytes, 30 per cent.; large hyalines, 4 per cent. The left chest was then aspirated, and 200 c.c. of slightly opalescent fluid containing shreds of lymph-like material were drawn off. Examination of the fluid showed scolices of *Tænia echinococcus* in large numbers. Hydatid complement reaction weak positive; precipitation reaction weak positive. The eosinophiles increased from 6 to 10 per cent. after aspiration. Dr. Jewesbury said that hydatid disease, particularly of the lungs or pleura, was comparatively rare in children in this country. At St. Thomas's Hospital during the last fifteen years there had been in all 21 cases—7 in males and 14 in females; the ages varied from 19 to 60, with 1 female child aged 3½ years, who had a hydatid cyst of the liver. The cases were as follows: Hydatid in liver, 16 cases; hydatid in lung, 2 cases; hydatid in kidney, 1 case; hydatid in peritoneum, 1 case; hydatid in spinal cord, 1 case.

Generalised Muscular Hypertrophy in a Boy, aged 10 years.—

Dr. R. C. JEWESBURY.—The patient had been sent to hospital as a case of ? facial paralysis. He had always been an ailing child. He began to walk at two years and was very backward mentally. He had a difficulty in speaking, and speech was accompanied by spasm of the facial muscles. There was no facial paralysis. He was unable to protrude the tongue to the full extent. There was no evidence of disease in the central nervous system. He had always been of a lazy disposition and did not care for games at school. Family history: He was one of nine children, all the others being normal. There was an extraordinary condition of hypertrophy of all his muscles, but this was particularly marked in the muscles of the shoulders, arms, chest and back. When stripped he looked like a young prize-fighter. It appeared to be a true hypertrophy, for his strength was in proportion to his muscular development. His weight was 3 st. 11 lb., and his bones were normal for his size. There was no abnormality of sexual development. A skiagram of the base of the skull showed a perfectly normal sella turcica, and there were no eye changes.

SECTION OF DERMATOLOGY.

May the 18th, 1922.

Case of Fox-Fordyce Disease.—Dr. H. W. BARBER showed a girl with the extremely rare condition described first by Fox in 1902, since when other cases had been published by Fordyce, Brocq, Haase and others. Fordyce named it "chronic, itching, papular erythema of the axillæ and pubes," and was inclined to classify it with simple lichenification, or the "névrodermite chronique circonscrite" of the French. Dr. Barber did not think it was of this nature, one reason being that the distribution was always the same, namely in the axillæ, pubic region, and to some extent on the presternal skin. Another point against its being simple lichenification was that X rays, even in big doses, had no effect on the eruption. The patient had now less itching, but he attributed that rather to the improvement in her general health than to the influence of the rays. Probably the patient secreted

some irritant through the sweat-glands. Histological examination confirmed Fordyce's description but did not throw much light on the ætiology. The patient had had the eruption just over two years.

Case of ? Angioma Serpiginosum.—Dr. E. G. GRAHAM LITTLE showed a boy, aged 12 years, with a nævoid condition which had first appeared on the right leg in a linear distribution near the ankle at the age of $2\frac{1}{2}$ years, and had steadily progressed up the leg till it had reached the mid-thigh. The patches took the shape of punctate hæmorrhagic spots. The patient was healthy and there had been no family disease.

Case of Adenoma Sebaceum.—Dr. S. E. DORE showed a boy, aged 6 years, with adenoma sebaceum of the Pringle type. There was vascular dilatation accompanying the sebaceous growths. It was noticed on the cheek at the age of one year, and similar lesions rapidly followed on the opposite cheek and on the nose and chin. The lesions were grouped about the nose, labial folds, lower parts of the cheeks and chin, and were stated to be gradually increasing in number. They varied from a pin's point to a pin's head in size, and were very slightly raised above the surface of the skin, except in one instance, there being a more elevated and larger flat growth as large as a pea in the centre of the right cheek. There was no evidence of mental deficiency, but he had had fits, which began at three months of age and lasted until he was a year old. He also had a flat growth on the right side of his chest which Dr. Dore thought was fibromatous. Molluscous growths were commonly found about the iliac and lumbar region in these cases. Electrolysis was undoubtedly the best treatment, but in hospital practice this was difficult.

Bullous Ichthyosis.—Dr. W. J. O'DONOVAN showed a female infant, aged 1 year 11 months, born at full time. There is no record of any skin affection in the family. There were no spots on the child at birth, but on the second day crops of blisters appeared and had continued to do so at frequent irregular intervals. When Dr. O'Donovan first saw the patient, in September, 1921, only an impetiginous condition was noted. Under treatment the scales disappeared and thick patches of epidermis or bare areas of burst blisters were visible. Temporary improvement followed a week's rubbing with mercury ointment, then after a $\frac{1}{2}$ pastille dose of X rays all over the eruption cleared up entirely. A month later (on April 6th, 1922) the child was readmitted, now presenting a tylotic condition of its hands and feet and a marked hyperkeratosis over its elbows, knees and neck. Over the abdomen there were segmented-like bands of cross-hatched thickened epidermis. The differential blood-count was normal; the Wassermann reaction was normal; there was no adenopathy. An injection of milk produced a marked local reaction, but the complete exclusion of milk and milk products from the diet produced no alleviation.

On commenting on this case the PRESIDENT (Dr. H. G. ADAMSON) said he thought this was a case of linear nævus. These multiple streaks often appeared months, even years after birth, and sometimes they were not noticeable until five or six years of age. It seemed to him that the blisters occurred only upon the areas of linear nævus and not upon the rest of the skin. He did not regard it as a case of epidermolysis bullosa, but as a warty linear nævus with bullous formation at the site of the nævus.

SECTION OF ORTHOPÆDICS.

April the 4th, 1922.

Case of Arthroplasty of both Hips.—Mr. O. L. ADDISON showed a girl, aged 15 years, first seen in May, 1915, with ankylosis of both hips, numerous abscesses and sinuses which had followed an attack of "rheumatism" in November, 1914. Murphy arthroplasty right hip August, 1916. Leg put up in abduction three to four weeks. Free flexion to right angle and movement painless. Murphy arthroplasty left hip January, 1918. No voluntary movement after operation; a few degrees only under anæsthetic. Patient not seen between March, 1918, when no movement was present in left hip, until March the 30th, 1922, when X rays showed complete absorption of head and neck on right side and very small part of neck remaining on left side in acetabulum. Free flexion and good abduction on right side. Flexion to right angle of left with about 30° abduction. Never had any pain or trouble in walking. The case suggested that arthroplasty had no advantage over excision.

Case of Arthritis of the Hip in a Girl, aged 9 years.—Mr. B. WHITCHURCH HOWELL.—When 6 months old the patient had an abscess of the left hip-joint, which was drained. When seen in February, 1922, the left lower limb was 1 in. short, and there was abduction of the femur, with flexion deformity of 60°. The hip was stable with a fair range of movement. X rays showed destruction of the head with broadening of the upper part of the femur. The points raised were: (1) Should a subtrochanteric osteotomy be done? (2) Should the anterior superior iliac spine be detached, with extension? (3) Or should (1) and (2) be done?

May the 2nd, 1922.

Case of Renal Dwarfism.—Dr. DONALD PATERSON showed a boy, aged 6 years. History: When aged 2½ it was noticed that he was getting knock-kneed. Had progressively become more and more deformed since. Height, 35 in., the normal height for his age being 44 in. Interstitial nephritis present. Urine: Specific gravity 1004 to 1014; cloud of albumin always present. Blood-pressure, 100 mm. Hg. Urea concentration test: Maximum output, 1.9 per cent.; normal, 3 to 4 per cent. Eyes normal. X-ray examination: (1) "Woolly" appearance of diaphyses at wrists; (2) fracture and irregularity of epiphysial line at lower end of femur. It was suggested that the agent which brought about the renal fibrosis also caused the bony changes. The agent was not dietetic as the patient's diet had contained plenty of both antirachitic and antiscorbutic elements. Changes were present at birth in some cases. Fractures were almost certainly due to deficiency of osteoid tissue and absence of lime, bony trabeculae being replaced by trabeculae of fibrous tissue, especially near the epiphyses.

Accessory Bone Representing Tubercle of Scaphoid of Foot.—Mr. R. C. ELSMLIE showed a girl, aged 12 years. Pain had been noticed over right scaphoid tubercle twelve months ago after skipping. Talipes valgus right and left. X rays showed accessory bone on right and left side. The right foot was large.

Curious Deformity of Ulna following Injury.—Mr. H. A. T. FAIRBANK showed a boy, aged 13 years, who had fractured his right ulna six years ago. The hand was displaced to the ulnar side, the ulna being very short. In the lower third of the forearm a piece of bone was felt projecting forwards among the flexor muscles. Skiagram: Ulnar shaft much shortened and with a piece of bone nearly 1 in. long projecting forwards from the lower extremity. Epiphysial line oblique; centre for the lower epiphysis of good size but of abnormal shape. On the tip of the piece of bone projecting forwards was a separate piece of bone, apparently a detached portion of epiphysis. The radial epiphysis was set obliquely on the shaft, corresponding with the ulnar displacement of the hand. It was suggested that the condition was the result of splitting of the ulnar epiphysis and shaft, the defoliated portion having grown, while growth at the main portion of the epiphysial line had been deficient. The treatment suggested was removal of the piece of bone projecting forwards and lengthening of the ulna.

Abstracts from Current Literature.

Diseases of Nutrition.

Ætiology of rickets ('*Lancet*,' 1922, I, p. 825).—L. Findlay states that rickets is due to confinement, lack of exercise and defective hygiene. Numerous cases among identically fed animals where rickets developed in those not exercised are described. Five hundred rachitic children were compared with 500 normals. There was no real difference in the length of breast-feeding in the two classes, and no striking evidence of gastro-enteritis among the rachitic. Two hundred and sixty of the 500 rachitic children lived in overcrowded quarters, and 340 were taken out-of-doors only very occasionally. Removal of the thymus does not render animals more susceptible, nor does it cause rickets. The average air space per person was in the case of rickets 396 cubic feet, in the case of slight rickets 452, and in the non-rachitic 565. Maternal care was good in 46 per cent. of the rachitic and in 84.5 per cent. of the non-rachitic. Diet played no important part, as the caloric intake in the rachitic was 3315, and in the non-rachitic 3390. Forty-eight per cent. of the rachitic and 40 per cent. of the normals consumed less than 100 grm. of protein per day. The average daily consumption of fat was in the rachitic 87.3 grm., and for the non-rachitic 96.7 grm. Family income did not seem to bear any relation to the disease, the average daily cost per head in the rachitic being 9½d., and in the non-rachitic 10½d. Rickets is not an infective condition. No specific antibody has been found, and puppies injected with blood from children suffering from active rickets do not develop the disease. Flea-bites were found in the rachitic but in very few of the non-rachitic, but rickets may develop in hospitals where vermin do not exist. Hess found that no increased rachitic tendency occurred in children fed on a diet so poor in animal fat as cotton-seed oil, which is totally devoid of the antirachitic vitamin. Further, fat digestion and absorption is good in rickets. Rickets is an unknown disease among the poor Indians, who take little fat of any kind and no animal fat, while among

the rich Hindus, whose children are secluded in dark and airless rooms, the disease is common. It was found that massage and electrical treatment enabled children to walk within four weeks, although the X-ray photographs showed no signs of healing in the bones until the expiration of two to three months. On the other hand, cod-liver oil produced very definite signs of healing on X-ray examination, although the power of walking was not restored till much later. Probably the muscles are affected, perhaps on account of the diminution of creatin content and other degenerative causes. Rickets is not due to deficiency of calcium, as the disease may occur in babies fed on cow's milk, which contains four times more calcium than human milk. In rickets the retention of calcium is erratic and occasionally falls below the normal, but in older children the retention of calcium was above the normal. The calcium content of the blood was also normal.

CHRISTOPHER ROLLESTON.

Ætiology of rickets in infants ('*Lancet*,' 1922, II, p. 7).—H. Chick and others investigated the question as to whether rickets is due to faulty dietary with lack of "A" vitamin or to other unfavourable environmental conditions. The influence of diet under constant conditions of hygiene was first investigated and then the influence of light. The infants were placed on either diet 1 or diet 2. Diet 1 consisted of Vienna undiluted fresh milk from stall-fed cows, with addition of 8 to 10 per cent. of sugar. Cereals were included after the age of 5 months, and later on fresh fruit and vegetables. Diet 2 consisted of a standardised full-cream dried milk yielding a fluid containing 13 per cent. solids, protein 3·4 per cent., fat 3·4 per cent., and sugar 5·3 per cent. For infants under 3 months it was more diluted and a small amount of sugar was added. Cod-liver oil was given to all the infants of this group. To both diets 5 to 10 c.cm. of fruit or vegetable juice was added. Infants on diet 1 received 20 per cent. less milk than those on diet 2, and twice the amount of sugar. In diet 1, 50 per cent. of the calories were given in the form of sugar, 10 to 15 per cent. as protein, and 20 to 30 per cent. as fat. In diet 2, sugar accounted for 30 per cent., protein for 20 per cent., and fat for 50 per cent. Sixty-four cases were under observation for 5 to 15 months. Their ages varied from 1 week to 5 months. All were free from rickets on admission as judged on clinical and X-ray findings. The clinical diagnosis was based on the bony stigmata confirmed by X rays. During the summer no case of rickets was detected among 40 infants on both types of diet. In the winter series of 51, 14 developed rickets in the spring, all of whom were on diet 1, and all, with 3 exceptions, were under 6 months old. Craniotabes occurred in 10 of the 14. Enlargement of the spleen was not found in cases of early rickets. It is concluded that rickets has a marked winter incidence, and that protection in winter can be afforded by diet. The methods of treatment were (1) by cod-liver oil, (2) exposure to mercury vapour quartz lamp, (3) outdoor treatment in sun or shade. Thirty-two children were observed, 14 of whom developed the disease in hospital. Their ages varied from 4 to 18 months, but one was aged 2 years. All were on diet 1, except the last-mentioned case. Six were treated by a 50 per cent. emulsion of unrefined cod-liver oil. The initial dose was 1 to 2 grm., reaching the maximum dose of 5 to 10 grm. in 10 days. Healing, demonstrated radiographically by the deposit of calcium in unossified tissue of the end of the long bones, was noted in 2 to 4 weeks from the beginning of treatment. Seven were treated by exposure to the mercury vapour quartz lamp. Three to four exposures of 5 to 30 minutes

were given weekly. Healing began as early, and was as satisfactory as with cod-liver oil. Seven cases were exposed to direct sunlight, 2 were shaded from direct rays of the sun, 3 others were treated by cod-liver oil as well as sunlight. The rate of healing was most rapid in the last group and in the others was directly proportional to the amount of exposure. In control cases removal to the good sanitary conditions* of the hospital was not sufficient to bring about any alteration in the rachitic condition. Fresh air and exercise apart from the greater incidence of sunlight do not prevent the onset of rickets, and with a minimal insolation, diet is the controlling factor. There may be a special photo-synthesis of the A vitamin under the influence of sun radiation.

CHRISTOPHER ROLLESTON.

Rickets: The part played by unhygienic social conditions in predisposing to the disease (*Glas. Med. Journ.*, 1922, 1, p. 129).—D. Noël Paton gives an account of an investigation into the condition of some families typical of the general condition of the crofter population of the Lewis in the Outer Hebrides, with special reference to dietetic and environmental factors. He considers that the condition of these people not only as regards diet but also as regards housing and mode of life is one calculated to increase their resistance to the onset of rickets. From his study of rickets he comes to the conclusion that it is highly improbable that the disease can be directly caused either by unhygienic surroundings or by defective feeding. The close association of rickets with the conditions of slum life, and the way in which it is apt to affect more than one member of the same family, suggest the possibility of an infective element in its causation, but the infection need not necessarily be a specific one. The onset of xerophthalmia as an accompaniment of arrested growth in the absence of the fat-soluble A factor is an illustration of this predisposition to infection. The fact that cod-liver oil plays at least some part in the prophylaxis and in the cure of rickets is no argument that it does so in virtue of its containing some factor in the absence of which rickets will develop. It is now considered a specific in rickets and its action is probably an indirect one upon the metabolism, so that resistance to the onset of disease is increased, or the morbid process, if established, is overcome. If the action of unhygienic conditions and of defective diet as simply predisposing to the onset of rickets is accepted, the practical question which has to be faced in each place in which the children are largely affected with rickets is whether the preponderant factor is the former or the latter.

J. ALLAN.

Rickets (*Practitioner*, 1922, cix, p. 36).—H. Thursfield sums up Mellanby's work by saying that animal fats possess anti-rachitic powers to a considerable degree while the vegetable oils have little or none. The most favourable diet for the production of rickets is one containing an adequate amount of protein, an excess of carbohydrate, a sufficiency of water, soluble B and C vitamins, and very little fat. Mellanby attributed the lack of growth in rats and the occurrence of rickets in puppies to absence or relative deficiency of the fat-soluble A vitamin. But to produce rickets growth must occur; further, the addition of lean meat, which possesses little or no fat-soluble A, prevents the disease; and lastly, green vegetables, containing much of that substance, fail to prevent the onset of the malady. Mellanby's final conclusions were that the following conditions tend to prevent rickets: (1) Plenty of calcium and phosphorus; (2) something in fats associated with or

identical with the fat-soluble vitamin; (3) meat and exercise. Rickets are favoured by the opposites of 1, 2 and 3, excess of bread, and excess of the protein moiety of caseinogen free from calcium. McCollum's experiments showed that rats fed on diet deficient in fat-soluble A but with plenty of phosphorus did not develop rickety changes in the bones. A deficiency of fat-soluble A is not the sole cause of rickets, but the level of phosphate in the blood is partly controlled by the amount of fat-soluble "A" vitamin. The conclusions based by Thursfield on Hutchison's Indian work are that she has not proved that the richer Indians really do consume much fat-soluble A, and that she makes no statements as regards the proportions of the disease at different ages of childhood. He further points out that the experimentalists all rely on changes in the long bones as evidences of rickets whereas they are only late manifestations. Rickets is not a pure deficiency disease.

CHRISTOPHER ROLLESTON.

Rickets: A theory of metabolic disturbances associated with tetany (*'Brit. Med. Journ.,'* 1922, I, p. 379).—D. Noël Paton states that tetany was found in 43 per cent. of the markedly rachitic and in 41 per cent. of the slight cases of rickets. A limitation of the phosphates of the food in proportion to the calcium combined with a diminished supply of fat-soluble "A" vitamin produced in rats a condition resembling rickets. Not all the calcium of the blood is combined with phosphorus as calcium phosphate. Perhaps it may be combined with fats, as phosphorised fats are found in abundance in the liver of the two-weeks-old chick. During the third week cholesterol esters of fatty acids take the place of phosphorised fats. The phosphorus of the blood is arranged as (1) phospholipin, (2) inorganic phosphorus, and (3) nucleic acid. Lecithin is a phospholipin, and in composition is glycerol combined with a fatty acid radicle, phosphoric acid, and cholin. From it are derived the phosphates of the bones, and it is suggested that some modification of the metabolism of lecithin causing the transference of phosphoric acid to bone in an unsuitable form is the cause of rickets. Further, the cholin part of lecithin is excreted as methyl-guanidin, which causes symptoms of tetany which so often occur in rickets.

CHRISTOPHER ROLLESTON.

Fat-soluble deficiency and rickets (*'La Pediatria,'* 1922, xxx, p. 97).—O. Cozzolino discusses the question whether there is any relation between rickets and a deficiency of fat-soluble vitamins. If the efficacy of cod-liver oil in rickets is indisputable, it is equally indisputable that its curative effects are not comparable in rapidity of action to those which a corresponding vitamin diet exercises on the cure of another avitaminic disease such as infantile scurvy. Even serious rickets has a tendency to spontaneous cure, and this occurs without any change of diet; scurvy, on the other hand, ends inevitably in death if not cured in time by a vitamin diet. If cod-liver oil acts on rickets in virtue of its fat-soluble vitamin, how is it that phosphorus alone gives the same result? A wet-nurse whose infant has developed rickets may suckle another rachitic infant whose rickets may disappear, or another infant which does not become rickety. The author does not agree with the avitaminic theory of rickets, and brings forward many arguments against it.

VINCENT DICKINSON.

Prevalence of rickets in an agricultural county (*'Med. Officer,'* 1922, I, p. 147).—W. T. G. Boul investigated 100 cases of undoubted rickets.

In 69 of these enlargement and protrusion of the frontal bones was noticed. The heads of the rachitic were slightly larger than the normal: 52 per cent. of the rickety had heads of 22 inches as compared with 46 per cent. of normal children. Fifty-eight per cent. showed Harrison's sulcus and a similar number were pigeon-chested. Fifty-six per cent. had deformities of the extremities, chiefly of the tibiae. Twenty-seven per cent. were stunted in height. Twenty-seven per cent. of the children suffered from bronchitis, and this complication was most common in those with chest deformity. In 26 per cent. adenoids were present. Rickets was most common in fairly large families. Thirty per cent. gave a history of rickets in other members of the family. Fourteen per cent. of the mothers suffered severely from anaemia and debility. Sixty per cent. of children had been entirely bottle-fed, 24 per cent. partly on the bottle and partly on the breast, and only 16 per cent. entirely on the breast. In the bottle-fed class, cow's milk, Robinson's patent groats or barley, Nestlé's milk, glaxo and malted milk had been given. In the partially bottle-fed breast-feeding had been discontinued between the fourth and fifth months. In the breast-fed class none had been weaned under 1 year of age, 5 had not been weaned till 15 months, and in 1 breast-feeding had continued for 2 years. The author suggests that weaning at 9 months would have prevented the disease. The eruption of the first teeth was much delayed. In only 25 per cent. had the teeth appeared before the end of the seventh month, and only 14 walked before the end of the first year. Cases were more frequent in the inland villages, as a better dietary can be obtained by the fisher folk.

CHRISTOPHER ROLLESTON.

Rickets in India ('*Glasg. Med. Journ.*,' 1922, 1, p. 145).—**H. S. Hutchison** and **S. J. Murphy** present an interesting inquiry into the occurrence of rickets in Nasik, a town of about 35,000 inhabitants, and situated about 120 miles north-east of Bombay. The disease was very prevalent among the well-to-do classes, whose women live a secluded life and whose dietary is superior to that of the poorer classes. Among the very poor, who live in mere hovels, rickets is conspicuous by its absence. Early and late rickets both occur in that stratum of society which enjoys the better dietary, but in which the seclusion of women and children is adopted. It is also noteworthy that late rickets attacks females only, and the onset of the disease is closely related to the adoption of the life of seclusion. It is therefore concluded that seclusion is an indispensable factor in the causation of early and late rickets.

J. ALLAN.

Pancreatic disorder in rickets ('*Brit. Med. Journ.*,' 1922, 1, p. 511).—**E. C. Dodds** reports that as a result of the examination of cases of acute rickets in children, distinct evidence was found of pancreatic disorder, as determined by an increase (1) in urinary diastase and (2) in faecal fat content. The diastatic power of the urine is greatly increased in rickets, the mean of 17 cases being 154; it falls to normal during convalescence. The fat in the faeces is increased in rickets, the mean being 75 per cent., as compared with 20 per cent. for a series of non-rickety children. It is therefore suggested that there is a pancreatic lesion in rickets, and a possible explanation of its bearing on the disease is given, namely, that there is a poor production of fatty acids, and consequently a poor absorption of

calcium. Attention is called to the acidosis of rickets. A new line of treatment is suggested, namely, the administration of pancreatic extract containing lipase.

J. ALLAN.

Influence of light in prevention and cure of rickets ('*Lancet*,' 1922, II, p. 367).—A. F. Hess.—Diet is an important factor. Some of the conflicting results depend upon the difficulty of interpreting correctly the pathological conditions of experimental animals. In rats deprived of the A soluble vitamin, osteoporosis rather than rickets results. Rickets has a well-marked seasonal incidence, the maximum number of cases occurring at the end of March. If infants are placed in the sunlight for 30 minutes daily the rachitic lesions of the epiphyses rapidly undergo calcification. The seasonal incidence depends, therefore, upon the variation of sunlight. Rats fed on the standard rickets-producing dietary but exposed to sunlight, the mercury quartz lamp or the carbon arc lamp do not develop rickets. The other factors concerned are the rapidity of growth and the diet. If the latter be increased and adequate growth obtained light treatment may fail to prevent rickets. Pigmentation of the skin which renders the rays inert is another point to be considered. Black rats fed on the rachitic diet and treated by light develop the disease, while the white rodents escape. Neither adequacy of ventilation or degree of temperature are causative factors. The ultra-violet rays are those which protect against the disease, and when filters are employed which cut off all the rays shorter than 475μ , rickets always ensues. The protective rays can pass through garments made of cotton, but not of heavier material. Röntgen rays failed to protect rats against the malady. Such rays do not produce rickets, but osteoporosis—an extreme exhaustion of the marrow. The rays produce an increase in the amount of inorganic phosphorus in the blood, and this amount is found to be least in March and most in the summer, when the incidence of rickets is least. As breast-milk fails to protect against the malady, diet cannot be the dominant or controlling ætiological element. Rickets occurs in about half of the breast-fed babies among the poor, even if the mothers have a liberal and varied diet.

CHRISTOPHER ROLLESTON.

Quartz lamp treatment of rickets ('*Wien. klin. Woch.*,' 1921, XXXIV, p. 241).—P. Erlacher states that the effect of quartz lamp treatment on rickets was first systematically studied with the help of X-ray findings by Huldshinsky, who succeeded in curing all degrees of rickets in children aged from $1\frac{1}{2}$ to $6\frac{1}{2}$ years with the ultra-violet rays in twenty-two to twenty-six sittings. His observations were confirmed by Putzig and Riedel, and recently Erlacher himself has treated forty-two cases of rickets by this method. The cases included early, well developed, severe and chronic examples of the disease in children aged from 1 to 7 years, and every month comparative skiagrams of the epiphyses of the right forearm were taken. At first the treatment was applied every other day, and later daily, beginning with the abdomen and back, which were irradiated for five minutes each at a time. The duration of the treatment was increased by two minutes until it amounted to fifteen minutes each for the abdomen and back. No bad effects were observed. The children were treated either as out-patients or admitted to hospital without any change being made in their diet. No drugs were given. After four weeks' treatment skiagrams showed an increased deposit of calcium in the osteoid tissue. Clinical improvement generally

occurred after six weeks' treatment, spontaneous fractures rapidly united, and osteotomies and osteoclasis became consolidated with a firm callus within four to six weeks. Erlacher concludes that the quartz lamp is a cheap, convenient and effective method of treating rickets. Within a year a single lamp can cure over 1000 patients.

J. D. ROLLESTON.

Ultra-violet radiation in rickets (*Amer. Journ. Dis. Child.*, 1922, xxiv, p. 20).—**B. Kramer, H. Casparis and J. Howland** exposed 5 children, 4 of whom were coloured and 1 white, to the ultra-violet rays of a mercury quartz lamp placed at a distance of 50 cm. from the patient daily for periods varying from 5 minutes at the beginning to 20 minutes at the end of the course. Rickets had been found to exist previous to treatment by radiographic evidence. The inorganic phosphorus concentration of the serum was low at the commencement of treatment—2·7 to 3·2 mgrm.—but increased at the termination of the course to the normal of 6 mgrm. The pigmented skin of the negro did not interfere with the action of the rays.

CHRISTOPHER ROLLESTON.

Rickets, marasmus and scurvy (*Lancet*, 1922, II, p. 551).—**H. Thursfield** points out that recent experimental work on rickets has not improved the clinician's treatment. Fresh air, good sanitation, sunlight, exercise and cod-liver oil have been the sheet-anchor for 25 years. Further deficiency of fat and excess of carbohydrate are the prime causative factors from the standpoint of the hospital physician. The experimentalist judges of the existence of rickets by the bony deformities in the long bones and ribs, which are a late manifestation of the disease. The clinician diagnoses the ailment by the earlier symptoms of (1) head-sweating and restless sleep, (2) loss of muscle-tone, (3) polyuria, (4) pallor, (5) alteration in the bones of the skull. A normal infant does not sweat. If beads of perspiration appear about the face and neck of an otherwise normal infant rickets can be safely diagnosed. Polyuria may replace sweating. The vitamin hypothesis is so far not proved. Both the dietetic school and the hygienic have right on their side. Scurvy, on the other hand, depends entirely upon the absence of the anti-scorbutic vitamin, and most of the cases have been fed on dried milk. A marasmic infant is one who, although fed on an apparently adequate diet, either remains stationary or loses weight. Some of these infants resemble animals fed on a diet insufficient in regard to its "B" vitamin content, but administration of a diet rich in "B" vitamin does not cure the condition. Some observers have had good results with small doses of thyroid extract.

CHRISTOPHER ROLLESTON.

An epidemic of Barlow's disease (*La Pediatria*, 1921, xxix, p. 66).—**E. Giorgio** describes an outbreak of Barlow's disease which occurred in Venice at the end of 1919 and first half of 1920. All the cases showed the characteristic triad of symptoms, viz. anæmia, characteristic changes in the bones and scorbutic gingivitis, except two in whom the lesions of the gums were absent. In almost all the children the classical symptoms of Barlow's disease were associated with rickets. In one case rickets was combined with the spasmodic diathesis. In all the cases dietetic treatment, which is the most valid test of the correctness of the diagnosis, was successful. Barlow's disease is rare in Italy, not only because up to a few years ago artificial feeding was rare in that country, but because patent

foods were not so popular as at present. All the children in the epidemic described belonged to the working classes, and had been fed for a prolonged period on condensed milk.

J. D. ROLLESTON.

Scurvy rickets (*Bull. et mém. soc. méd. des hôp. de Paris*, 1921, 3^e sér., XLV, p. 288).—**J. Comby** remarks that though infantile scurvy has been familiar to pædiatrists since Barlow's description in 1883, general practitioners are still too apt to overlook it. From an experience of 72 cases he has found that in nine out of ten cases the disease had not been recognised before the child has been brought to him. Since the war the disease has become more frequent for two reasons: (1) Scarcity of fresh milk, and the necessity of employing preserved milk and special infant foods on a large scale; (2) failure on the doctor's part to recognise the symptoms of scurvy and an ignorance of its causes and the means to prevent it. The diagnosis is established by the following points, which should always be borne in mind in the case of a child who has been ailing for some time and has been treated by various methods without success: (1) Artificial feeding for six to ten months with sterilised or condensed milk, or infant foods; (2) pains in the bones followed by loss of power in the lower limbs and cries when they are moved—a sign invariably present; (3) ecchymoses in the gums. This sign, though pathognomonic, is not constant, being absent in 22 per cent. of Comby's cases. Prophylaxis consists in the administration of a small quantity of orange juice, grape juice or lemon juice daily to children who have been fed on sterilised or condensed milk. Treatment consists in substituting boiled fresh milk for preserved milk, and giving one or two teaspoonfuls of orange juice daily.

J. D. ROLLESTON.

Syphilis.

Two cases of extra-genital chancre (*Med. J. Austral.*, 1921, I, p. 312).—**N. Paul**.—A girl, aged 2½ years, contracted syphilis from an infant brother suffering from congenital syphilis. The boy suffered from marked fissuring of the lips, and the girl from a chancre of the lower lip, doubtless contracted from kissing the brother.

F. R. B. ATKINSON.

Craniotabes and syphilitic rickets (*Paris méd.*, 1921, II, p. 493).—**A. B. Marfan** states that though syphilis may give rise to all forms of rickets, as a rule it produces a special clinical form which is distinguished by the following features: (1) Early onset. It is either congenital or appears in the first three or four months of life. This is the most important characteristic, for all the others result from it. (2) Predominance of rachitic changes in the skull-bones. Craniotabes is first observed, and later abnormal prominence of the frontal and parietal eminences. When rickets is due to another cause, especially tuberculosis and severe and persistent digestive disturbances, the skull is often spared or little affected, and hardly ever shows any craniotabes. (3) Fairly marked anæmia, especially during the first few months of life. (4) Chronic enlargement of the spleen. In the course of the second year or even earlier the last two features tend to disappear, but the cranial stigmata persist for long—sometimes for years and even throughout life. Marfan considers most cases of rickets with well-marked deformity observed after the first year as of syphilitic origin. Rickets due to tuberculosis or digestive disturbance as a rule produces only

a slight deformity, because it commences at a period when the skeleton is much more solid and ossification is less affected. Marfan emphasises the fact that craniotabes is not due to a mere delay in ossification, as maintained by Comby, Lasègue, Wickmann and Lesage, but is the manifestation of early rickets, which in most cases is of syphilitic origin.

J. D. ROLLESTON.

The relation between craniotabes and rickets (*'La Pediatria,'* 1921, xxix, p. 643).—S. de Stefano gives a table of 52 cases, comparing the family history, mode of feeding, clinical signs and Wassermann reaction in both mother and child. There was admitted parental syphilis in 8 cases, maternal tuberculosis in 1 case, family rickets in 1 case, premature and still births in 26 cases, *i.e.* 50 per cent.; 28 were breast-fed, 15 mixed fed, 9 artificially fed. The Wassermann reaction was positive either in mother or child in 27 cases, which, together with cases of admitted or clinically evident syphilis, makes a total of 37 cases, or 71 per cent. Therefore, in 29 per cent. syphilitic infection could be excluded. The author considers that facts support the theory that a definite intimate relation exists between craniotabes and rickets—that the former represents the earliest manifestation of the latter. This is also shown in the beneficial effects of early treatment by phosphorus. The large number of cases where syphilitic infection existed bears out Marfan's idea of syphilitic rickets.

VINCENT DICKINSON.

Syphilitic rickets through a wet-nurse (*'La Pediatria,'* 1921, xxix, p. 440).—L. M. Spolverini describes the case of a child who, owing to the inability of its mother to nurse it, was put to the breast of a young wet-nurse when 2½ months old. The change was at first followed by considerable improvement in the child's condition, but after two months it began to lose weight, became anæmic, with increase in size of the skull and enlargement of the liver and spleen. The wet-nurse and her own child both gave a positive Wassermann reaction, while in both the parents it was negative. Great improvement followed the administration of calomel.

VINCENT DICKINSON.

The teeth in congenital syphilis (*'Zentralbl. f. inn. Med.,'* 1921, XLII, p. 977).—P. Kranz, from ten years' study of dental anomalies in his dental practice, maintains that Hutchinson's teeth are by no means always a typical sign of congenital syphilis, having found them in undoubtedly nonsyphilitic individuals and especially in cretins. They are, moreover, relatively uncommon, and Hutchinson himself regarded them as a sure sign of congenital syphilis only when they formed part of the triad. Kranz also mentions that all disturbances of growth in the period of development, including changes in the teeth and gums, have a common cause, for which local mechanical factors or the action of spirochaetes, bacilli or intestinal disturbances are not alone responsible, but are mainly due to disturbances of calcium metabolism which originate from endocrine disorders. Owing to the relatively frequent involvement of the endocrine glands in congenital syphilis dental anomalies are frequently found in these patients, but these anomalies are by no means characteristic of congenital syphilis.

J. D. ROLLESTON.

Gastro-intestinal troubles in the syphilitic infant (*Journ. de Med. de Paris*, 1921, XL, p. 426).—A. Jouin remarks that usually during the first few months the congenital syphilitic infant shows some slight intestinal disturbances and its weight does not increase as much as a healthy infant. Vomiting is frequent, and about the third month a chronic apyrexial diarrhoea. The stools are frequent, pale or yellow, with fragments of undigested casein. This diarrhoea does not respond readily to treatment, and the writer suggests it is of endocrine origin, due to the sclerosing effect of the treponema on the endocrine glands, especially the liver, pancreas and spleen. Besides antisyphilitic treatment by mercury and arsenic compounds, a combination of extracts from the liver, pancreas and spleen may be given.

J. PORTER PARKINSON.

Cardiac and vascular lesions in congenital syphilis (*Zentralbl. f. inn. Med.*, 1921, XLII, p. 601).—L. Hahn, from a study of 150 cases of congenital syphilis, concludes that the great majority of vascular neuroses are due to these causes. In addition to the ordinary signs of vaso-motor instability more serious cases of vascular crises in various regions of the body are included in this category. Congenital syphilis acts as a predisposing cause; all the other factors incriminated are of secondary importance. The site of the disease is either the vessels, the vaso-motor centre, or the endocrine glands closely connected with the blood-pressure. Hahn is of opinion that in the diagnosis of congenital syphilis more importance should be attached to the patient's physiognomy and history than to the Wassermann reaction. The presence of congenital mitral stenosis in 90 per cent. of the cases indicated involvement of the whole cardio-vascular system.

J. D. ROLLESTON.

Syphilis in children of school age with heart disease (*New York State Journ. Med.*, 1921, XXI, p. 176).—B. F. Donaldson, after investigating a limited number of children suffering from cardiac affections, comes to the conclusion that syphilis is not a very great factor in the causation of heart disease in children.

J. ALLAN.

Symmetrical gangrene of the feet in hereditary syphilis (*La Pediatria*, 1921, XXIX, p. 301).—G. Berghinz describes the case of a boy, aged 12 months, admitted to hospital for cachexia and cedema of the lower limbs. All movements were normal and there were no signs of lesion of the central nervous system. The Wassermann reaction was positive. Subsequently the cedema became cyanotic, and a condition of gangrene made its appearance in the lower extremities from the ankle to the tips of the toes. The gangrene, which was at first moist, became dry, and the infant died of marasmus. The autopsy showed normal viscera. There was thrombosis of all the vessels below the popliteal space. The brain was normal. The spinal cord was worm-like and came out of the spinal canal easily. Histological examination by Prof. Bonome showed delayed development, as evidenced by the persistence of a wide gutter in place of the anterior longitudinal sulcus and imperfect formation of the anterior columns and bundle of Türk. The scanty fibres of the white commissure were uneven and often varicose. In the grey matter the cellular nuclei of origin of the roots were composed of a scanty number of cells, the roots being thin and consisting of few fibres. The grey matter itself was more than ordinarily rich in small vessels (congenital syphilis). The meninges were thin and presented marked lymphoid infiltration.

VINCENT DICKINSON.

Epitrochlear adenitis and its relation to congenital syphilis (*'La Pediatria,'* 1921, xxix, p. 193).—**S. Fabris** investigated a very large number of children suffering from various maladies up to the age of two years, in whom the presence of epitrochlear adenitis was ascertained. In syphilitic cases it was found in about 33 per cent., in other cases below 11 per cent. He therefore regards it as the sign of a general infective process met with more frequently in hereditary syphilis than in any other affection. If not sufficient of itself to justify a diagnosis of congenital syphilis it should give rise to a suspicion of it, and induce further observation to establish the diagnosis. On the other hand its absence cannot be held to exclude syphilis.

VINCENT DICKINSON.

The ravages of congenital syphilis and how to combat them (*'Glasg. Med. Journ.,'* 1921, II, p. 278).—**L. Findlay** directs attention to the value of ante-natal treatment. The prophylactic method of treatment in the first place stands in marked contrast to the curative method in that it influences all varieties of congenital syphilis, including miscarriages and stillbirths. In the second place, children born after this method of treatment invariably have presented no manifestations of the disease, and in only very rare instances have they developed later a positive Wassermann reaction. In the third place, the ease of the ante-natal method of treatment and the avoidance of the pain and misery so many of these young syphilitics undergo in the course of the curative method are striking and urgent recommendations in its favour. He maintains that the treatment of congenital syphilis is the duty of the family physician, and in his opinion there is no necessity for special venereal clinics, nor for the so-called venereal specialist. He pleads strongly for the inclusion of syphilis among notifiable diseases, and he briefly discusses the influence of syphilis on infantile mortality.

J. ALLAN.

Ante-natal treatment of congenital syphilis (*'Glasg. Med. Journ.,'* 1921, II, p. 270).—**J. G. Greenlees** emphasises its importance. Ante-natal treatment with mercury and potassium iodide is uncertain and unreliable. Far superior results are obtainable by treatment with arsenical compounds and mercury. He quotes 15 cases so treated at the Royal Hospital for Sick Children, Glasgow, in every case with success.

J. ALLAN.

Congenital syphilis after salvarsan treatment of the mother (*'Gaz. hebdomadaire des sci. méd. de Bordeaux,'* 1921, XLII, p. 446).—**R. Dupérier** and **Boisserie-Lacroix** record two cases of congenital syphilis in infants whose mothers had been treated by novarsenobenzol. In the first case treatment had been started in the fourth month and had not been carried out vigorously until the sixth month of pregnancy, 3.75 gm. of novarsenobenzol in all having been given. Treatment by intramuscular injections of biniodide of mercury were then continued until the beginning of the ninth month. In the second case arsenical treatment consisting in 3.15 gm. of arsenobenzol immediately preceding fecundation and during pregnancy all treatment was interrupted. It would be a mistake to regard the arsenical treatment as useless in these two cases, as thanks to it pregnancy was brought to full term in each case, and two apparently healthy children were born, the symptoms developing in the course of the first month.

J. D. ROLLESTON.

The post-natal treatment of congenital syphilis (*Glasg. Med. Journ.*, 1921, II, p. 257).—**G. B. Fleming**, after briefly outlining the methods of treatment by mercury and their results, deals with mercurial treatment combined with treatment by the salvarsan group of substances. In considering the results of treatment the criterion of cure adopted was a negative Wassermann reaction which remained negative. Seventy-four cases are analysed and he thinks the following points are demonstrated: (1) The intravenous injection of these compounds reinforced by mercury is the best post-natal method of treating congenital syphilis. (2) The younger the patient the greater is the likelihood of a cure resulting. (3) Although signs and symptoms disappear and the Wassermann reaction becomes negative immediately after the course of treatment has ceased, there is still a possibility of a positive Wassermann reaction being obtained at a later date, and therefore we should not pronounce the case cured until a negative Wassermann reaction has been obtained more than six months subsequent to the conclusion of treatment.

J. ALLAN.

Some studies in the early treatment of congenital syphilis (*New York Journ. State Med.*, 1922, XXII, p. 127).—**T. B. Givan** maintains that by treating the cases early certain stigmata which often occur in late congenital syphilis will be prevented, as interstitial keratitis, auditory nerve changes, bone changes or cerebro-spinal lues. He outlines the methods of treatment in two series of cases. In the first (15 cases) there was no antenatal treatment; in the second (27 cases) treatment was pre- and post-natal. Mercury internally and externally, combined in certain instances with salvarsan, is advocated. The Wassermann test should be done at intervals.

J. ALLAN.

Neosalvarsan in the treatment of infantile syphilis (*La Pediatria*, 1922, xxx, p. 115).—**R. Spanò** has treated 42 children, aged from 2 months to 10 years, using the drug intravenously in strong solution in twice distilled water. The initial dose did not exceed 1 cgrm. for each kgrm. weight and the maximum 3 cgrm. per kgrm. The author found no difficulty in the technique, there were no bad effects, and 100 per cent. cures.

VINCENT DICKINSON.

Syphilis in children (*Med. Journ. Austral.*, 1922, I, p. 265).—**H. B. Graham**.—Deep subcutaneous injection of novarsenobillon is generally applicable for all syphilitic children. The serious sequelæ are abscesses. Larger doses than usually recommended have produced no unfavourable results. Percutaneous intravenous injections may be preferable in some cases. An analysis of 76 cases is given.

F. R. B. ATKINSON.

Treatment of congenital syphilis by subcutaneous injections of neosalvarsan (*Gaz. hebdom. des sci. méd. de Bordeaux*, 1921, XLII, p. 590).—**R. Lartigaut** states that since 1920 more than 500 subcutaneous injections of neosalvarsan have been given in Rocaz's service to 22 patients at the Children's Hospital at Bordeaux in the treatment of congenital syphilis. The dose consisted of 2 cgrm. of neosalvarsan per kilo of body-weight. Two injections were given a week, and the treatment was stopped after two series of 15 to 20 injections with an interval of a fortnight between each. It is advisable to continue the treatment until the Wassermann reaction in the

blood becomes negative. No bad effects were observed in any case. Local reactions were exceptional and always slight, and a general reaction never occurred. The method proved to be simple, efficacious and safe.

J. D. ROLLESTON.

Sulfarsénol in congenital syphilis (*Glasg. Med. Journ.*, 1921, II, p. 263).—E. Crawford reports on a series of 35 cases submitted to treatment with sulfarsénol. The results, however, showed that the intramuscular injection of this medicament is not as efficacious in producing a cure of congenital syphilis as the intravenous injections of kharsivan—at least when tested by the behaviour of the Wassermann reaction.

J. ALLAN.

Intravenous injection of cyanide of mercury in the infant (*Paris Méd.*, 1921, II, p. 374).—G. Blechmann states that Abadie in 1890 was the first to treat severe lesions of the fundus by intravenous injections of cyanide of mercury, and that Rebault in 1902 made use of the method in the syphilis of adults and children. Blechmann has treated several infants suffering from congenital syphilis by this method, the injection being made into the veins of the scalp. The average dose was 1 mgrm. of the drug. Intolerance is indicated by salivation, excess of mucus in the stools, restlessness, insomnia and extreme thirst.

J. D. ROLLESTON.

Treatment of Parrot's disease (*Gaz. hebd. des sci. méd. de Bordeaux*, 1922, XLIII, p. 83).—R. Dupérié and Encontre report their observations on 7 infants with Parrot's pseudo-paralysis who were given the following treatment: (1) Daily inunctions with mercury ointment; (2) 1 mgrm. soon followed by 2 mgrm. of perchloride of mercury by mouth in the form of van Swieten's fluid; (3) after two or three days' mercurial treatment 2 subcutaneous injections of sulfarsénol were given, first in doses of $\frac{1}{2}$ cgrm., which were soon increased to 2 cgrm. per kilo body-weight a week. After 10 or 20 injections the sulfarsénol was stopped and the mercury resumed. Another series of sulfarsénol injections was given after two months' rest, and then a third series after another interval of two months. The mercury, which was stopped during the injections, was resumed during the intervals. After the sixth or seventh injection of sulfarsénol the pseudo-paralysis disappeared as well as the syphilitic manifestations in the skin and mucous membranes and œdema. The coryza was more persistent and did not disappear until after the tenth injection. Enlargement of the epiphyses subsided after the second series of injections. Improvement of the general condition and anæmia took place rapidly. Visceral symptoms and delay in dentition required prolonged treatment.

J. D. ROLLESTON.

Reviews.

THE PHYSIOLOGICAL FEEDING OF INFANTS AND CHILDREN: A HANDBOOK OF THE PRINCIPLES AND PRACTICE OF FEEDING. By ERIC PRITCHARD, M.A., M.D.Oxon., M.R.C.P.Lond., etc. Fourth edition. Pp. 500. London: Henry Kimpton, 1922. Price 21s. net.

THE book is well known to most pædiatricians. The present edition differs from the third in that during the twelve years' interval that has elapsed

between the two editions the author has modified his views with regard to several matters. He now holds the view that babies from birth till six months old should be fed three-hourly, and that it is unphysiological to increase the protein concentration of milk mixtures with increase of age of the infant. We believe these views to be sound, based as they are on experimental and biochemical grounds. The author has also included a chapter on the feeding of children between 1 and 16 years.

The book, as is well known, has as its *leitmotiv* the two principles of "caloric value" and "balance." We believe that the author attaches too much importance to the question of balance (*i. e.* the relative proportions of protein carbohydrate and fat) in the diet of older children, since we do not think that there is as yet any real agreement amongst physiologists as to what constitutes "balance" at any particular age. We fail to be convinced regarding the propriety of continuing to take breast-milk as the standard for children approaching the age of puberty. On the vexed question of raw *v.* cooked milk the author does not write convincingly. He points out that putrefactive organisms in milk "survive long exposure to 100° C.," but a few lines lower down he is "quite convinced that milk maintained at a temperature of 100° C. for three minutes is perfectly safe for infants." Also on the question of starch foods for babies Dr. Pritchard is not quite consistent. On p. 33 and elsewhere he recommends on physiological grounds the giving of minute quantities of starch from the tenth day onwards, and yet on p. 27 he gives bacteriological reasons for regarding starch as a poison to an infant. In addition to these inconsistencies the book contains a number of inaccurate statements, some of which are obviously oversights (as, *e. g.*, the statement on p. 7 that the caloric value of fat is 9.1 *per ounce*). His definitions of food and of basal metabolism are incomplete. The efficiency of the human body is 21 per cent. and not 16 per cent.; and a low solid excretion in the urine is, in our opinion, no evidence of deficiency of food. There are also a number of misprints—such as *stearopsin*, *Mechel's diverticulum*, etc., and above all the author is much too fond of frequently repeating himself.

Notwithstanding these minor faults the book as a whole is a good one and will be found useful by medical officers of children's institutions.

W. M. F.

THE DISEASES OF CHILDREN: MEDICAL AND SURGICAL. By the late HENRY ASHBY, M.D., F.R.C.P., and the late G. A. WRIGHT, M.B., F.R.C.S. Revised by HUGH T. ASHBY, M.D., M.R.C.P.Lond., Hon. Physician to Manchester Children's Hospital; and CHARLES ROBERTS, M.B., F.R.C.S., Hon. Consulting Surgeon to the Manchester Children's Hospital. Sixth edition. Pp. 769. Oxford Medical Publications. London: Henry Frowde & Hodder & Stoughton, 1922. Price £2 2s.

IN extending a welcome to the sixth edition of this well-known text-book, the reviewer is constrained to think of the many difficulties confronting those responsible for its re-issue in revised form. It is no easy task to revise a text-book, and the difficulties must be increased where two revisers are at work upon a book originally the result of a collaboration. The ideal to be attained, we presume, is the production of a work which has a uniform appearance of having been recently written, while it profits by the experience and teaching of former writers. Judged by this standard we cannot say that we think that the present revisers have been entirely successful. The book shows evidences of different hands and different ages: the unities,

as it were, have not been preserved. In particular the antique woodcuts should certainly be entirely omitted, and the more modern illustrations, which are really excellent, should be multiplied. We think that the revisers would have done well to have permitted themselves greater freedom in their work.

We offer this criticism because we are, and always have been, attached to the book. For one thing it has adhered to the difficult, but probably correct plan, of combining both medical and surgical diseases of children in one volume. The descriptions of the various diseases are clear, concise and easy to grasp, and although some curious omissions might be noted, the work as a whole is one of which the Manchester School may justly be proud.

R. M.

INFANT FEEDING. By CLIFFORD G. GRULEE, A.M., M.D., LL.D. Fourth edition. Pp. 397. Philadelphia and London: W. B. Saunders Co., 1922. Price 22s. 6d. net.

THE fourth edition of Dr. Grulee's work on infant feeding maintains its previous high standard, and is sufficient indication that it is widely appreciated. Nearly one-third of the text is devoted to the fundamental principles of infants' nutrition, including a valuable chapter on the bacteriology of the gastro-intestinal tract, and another on the observations of various workers on absorption and metabolism. The directions for the management of breast-feeding and artificial feeding are mainly on the same lines as those practised in this country. The author strongly advocates four-hourly feeds, weaning at nine months, and malt sugars in preference to cane or milk sugar. Apparently he thinks more frequent feeds rarely, if ever, necessary, and he believes in the dilution of cow's milk and simple measures generally. The milk of other animals, various modifications of cow's milk and dried milks receive sufficient consideration, but more might have been said about some of the proprietary foods. Barely one page is spent on nourishment during the second year, and the diet recommended consists of milk and carbohydrates, with some vegetable or fruit juices, up to eighteen months of age. Eggs, fish, chicken and red meat are not advised until this age is reached, whereas in this country such foods are generally given with advantage at an earlier age. Grulee appears greatly influenced by German authorities, and he adopts in a slightly modified form Finkelstein's classification of nutritional disturbances into those of weight disturbance, dyspepsia, decomposition (marasmus, etc.) and intoxication (summer diarrhoea, etc.), in spite of the æsthetic objection to the use of the two last-named terms in conveying to a fond mother the nature of the child's illness. Separate chapters are devoted to feeding in premature children, the exudative diathesis, the spasmophilic diathesis, the nervous infant, rickets, scurvy, eczema, pyloric stenosis and in other diseases. These are sufficiently full and practical, and the vitamins have received the amount of attention they deserve at present. The book is well printed in clear type on unglazed paper and has a good index. It is written in excellent language, free from expressions which sometimes in American works jar on British ears. Some of the eight coloured plates, seven being of infant stools which do not convey as accurate a picture as the real article, and of the twenty-nine other illustrations might be omitted and thereby reduce the price of the book. It is such a valuable, scientific and practical work on an important and difficult subject that it deserves a wide circulation, and should certainly be in the possession of all interested in this subject.

E. C.

THE SURGICAL DISEASES OF CHILDREN. By FREDERICK C. PYBUS, M.S., F.R.C.S. London: H. K. Lewis & Co., Ltd., 1922. Price 18s.

It is with very great pleasure that we sit down to review this work. We can state at once it is an excellent book, and any criticisms we may make are merely due to the ordinary disagreement which must and should exist between friends. This book is the result of the author's own practical experience, teaching and writings, and is redundant with the author's ideas.

In surgical books on children it is extremely difficult not to encroach on diseases of adults, and to confine oneself merely to the affections of children. This book has succeeded admirably in dealing solely with the conditions of children, and with these it has dealt very clearly within the limited space at its disposal.

From the practical side the author has wisely ignored all but the outlines of pathology, which, to the practitioner, is of very little value, but we should have been very much better pleased if in the ætiology he had used figures and percentages rather than the words "rare," "unusual" and "common."

The author makes no reference to the works and ideas of others, though he has absorbed these to good purpose and hands them on to his readers. This is carried rather far in some cases, as in dealing with cleft palate he makes no mention of the Lane and Brophy operations, not even to condemn them.

The illustrations are very good, very clear and very plentiful, and reveal the care and interest the author has always taken in his subject. If one might say so, they are infinitely superior to the diagrams he sometimes uses to illustrate his meaning.

There are several statements with which one does not altogether agree. One is very surprised, for instance, to find a writer on children's diseases still making the statement that "all inguinal hernias in childhood are due to a congenital defect in the persistence of a peritoneal process." Can this be proved? A few are congenital—continuation of the tunica with the peritoneum shows this—but surely the majority are acquired by the raising of intra-abdominal pressure? The commonest hernia is the umbilical; these must all be acquired in this way. We really thought that such ideas had disappeared when those who wrote on the diseases of children ceased to regard them as adults in miniature. Still more astonished are we to find that, in dealing with retro-pharyngeal abscess, the tuberculous pre-vertebral abscess is still confounded with this acute form of suppuration, with which pathologically, practically, and from the point of view of treatment it has nothing whatever in common.

In the treatment of psoas abscess we note that the author still injects iodoform, which we should have thought everybody now at last recognised to be a perfectly inert substance; its claim as a disinfectant has long been discarded.

Curiously enough in dealing with intussusception, though no percentages are given, Mr. Pybus gives the ileo-colic intussusception as the commonest of types—he must surely be alone in such an opinion. In the diagrams which accompany this form of intussusception it is quite rightly labelled "enteric"; its name is changed to ileo-colic on its reaching the ileo-cæcal valve. One would like to know how far an enteric intussusception must start above the valve in order to maintain its proper name. We thought that there had been a general movement to discard fanciful and wholly unnecessary names, and to class intussusceptions as enteric, ileo-cæcal and colic. We have great pleasure, however, in noting that the author admits that the

apex of the intussusception remains constant throughout its formation. In the old explanation of the ileo-colic variety the possibility of its existence depended solely on the fact that the apex was constantly changing.

We are rather doubtful of the statement that "the tonsils are frequently tuberculous." We thought 5 per cent. of tuberculous tonsils was about the most claimed by investigators, and that it was recognised that the injury done to the glands of the neck was rather by the absorption of sepsis from the teeth, tonsils and adenoids, preparing a suitable nidus in which the circulating tubercle bacilli were able to settle.

If Mr. Pybus can forgive these little criticisms upon quite minor points in an otherwise very excellent book we can assure him that we welcome his book entirely, as a great help and useful addition to the surgery of children, and a very great help and assistance to the general practitioners and students, for whom largely it is evidently written. D. C. L. F.

SYPHILIS. Tome II: SYPHILIS ACQUISE DE L'ENFANCE ET SYPHILIS HÉRÉDITAIRE. Par ED. FOURNIER et PIERRE FERNET. Pp. 279. Paris: Maloine et fils, 1921. 68 figures et 8 planches en couleurs. Price 18 frs.

THIS is the twentieth volume of the 'Traité de Pathologie médicale et de Thérapeutique appliquée,' edited by Emile Sergent, L. Ribadeau-Dumas and L. Babonneix. In the section on acquired syphilis in infancy, Fernet discusses the possibility of infection of the child during birth from lesions on the mother's genital organs, assuming that, however late in pregnancy the mother is infected, the child is always syphilised. He points out the importance of discovering a chancre, usually cephalic, in the diagnosis of acquired syphilis in infants, but mentions that it is often not found, and may be of short duration. He states that syphilis acquired by infants may be followed by dystrophic effects similar to those of heredo-syphilis, and quotes a case reported by Eudlitz of an infant which contracted syphilis from a syphilitic nurse, and at the age of thirteen had keratitis, malformed teeth, and almost complete deafness and arrested sexual development.

The second and largest section of the book, by Edmond Fournier, gives a full and lucid description of early congenital syphilis and is well illustrated. Fournier points out that heredo-syphilis may cause latent visceral lesions which may lay the foundation for visceral disease in later life. The subject of the transmission of syphilis to the infant is dealt with only briefly, and the question of paternal heredity is left open. Fournier gives at length the evidence for transmission of heredo-syphilis to the second generation (syphilis of the third generation), including his own observations, and concludes that apart from the transmission of dystrophic effects, actual syphilitic lesions occur in 14 per cent. of such cases. He quotes a case of apparent transmission to the fourth generation (Gaucher). Fournier holds the view that every child born of syphilitic parents should be treated even if apparently healthy. In syphilitic affection of the endocrine glands, which is alleged to be the cause of certain dystrophic effects, such as hypothyroidism in the case of the thyroid, and infantilism in the case of the genital organs, administration of extract of the corresponding gland is advised in addition to anti-syphilitic treatment. Fournier has strong views on the question of the marriage of syphilitics, and, contrary to the majority of syphilologists, holds that syphilis should be a bar to marriage. He supports this opinion by quoting cases of women who gave birth to syphilitic infants twenty years

after infection, the husband being healthy. Such cases, however, are obviously open to other explanations.

The last section, on late heredo-syphilis, is by Fernet. Discussing the frequent difficulty in diagnosis between heredo-syphilis and tuberculous lesions, he supports the view that syphilis creates a soil which is vulnerable to tubercle. In the same way it predisposes to rickets, which is not, as Parrot taught, syphilitic in nature, but may be of syphilitic origin. With regard to prognosis in late heredo-syphilis, Fernet mentions the observations of Hutinel and Nadal on recrudescence of heredo-syphilis under the influence of acute infections, either in the form of actual syphilitic lesions, or, more often, by the abnormal evolution of the superadded infection. Immunity in heredo-syphilis, he says, disappears between the ages of eighteen and thirty, so that a heredo-syphilitic may contract the acquired disease, but the gravity of the latter is diminished in such cases (Gaucher and others). Reinfections occur chiefly in subjects who have not been severely affected by the inherited disease, and who have a negative Wassermann reaction. In a case reported by Joltrain, however, this reaction was weakly positive.

The book constitutes a concise and comprehensive monograph on syphilis in childhood.

C. F. M.

OTO-RHINO-LARYNGOLOGY FOR THE STUDENT AND PRACTITIONER. By Dr. GEORGES LAURENS. Authorised English Translation of the Fourth Revised French Edition by H. CLAYTON FOX, F.R.C.S.Irel. With a foreword contributed by Sir J. DUNDAS GRANT, M.A., M.D., F.R.C.S. The Second English Edition with 589 illustrations. Bristol: John Wright & Sons, 1922. Price 17s. 6d. net.

THE rapid appearance of a second English edition of this excellent textbook so soon after the first (see *BRITISH JOURNAL OF CHILDREN'S DISEASES*, xvii, p. 58) is a convincing proof of the success which it deserves. In the present edition the text has been revised, some chapters have been condensed, and certain additions made, especially on Vincent's angina, the treatment of hay-fever, pseudo-hæmoptysis of laryngeal origin and vaccine therapy.

J. D. R.

MEDICINE: ANALYTICAL REVIEWS OF GENERAL MEDICINE, NEUROLOGY AND PEDIATRICS. Edited by DAVID L. EDSALL, Harvard Medical School, JOHN HOWLAND, Johns Hopkins Medical School; Associate Editor, PAUL D. WHITE, Massachusetts General Hospital. Published quarterly by Williams & Williams Company, Baltimore, U.S.A. Subscription price per volume net, post paid, \$5.00 United States, Mexico, Cuba, \$5.25 Canada, \$5.50 other countries. Single copies \$2.00.

WE welcome the arrival of this new quarterly, which made its first appearance last May. Its function is to supply authoritative and comprehensive reviews of subjects in the field of internal medicine, neurology and pædiatrics. The articles in the first number, which admirably fulfil this aim, are by Dr. G. Canby Robinson on "The Therapeutic Use of Digitalis," and by Dr. Kenneth D. Blackfan on "The Treatment of Meningococcus Meningitis."

J. D. R.

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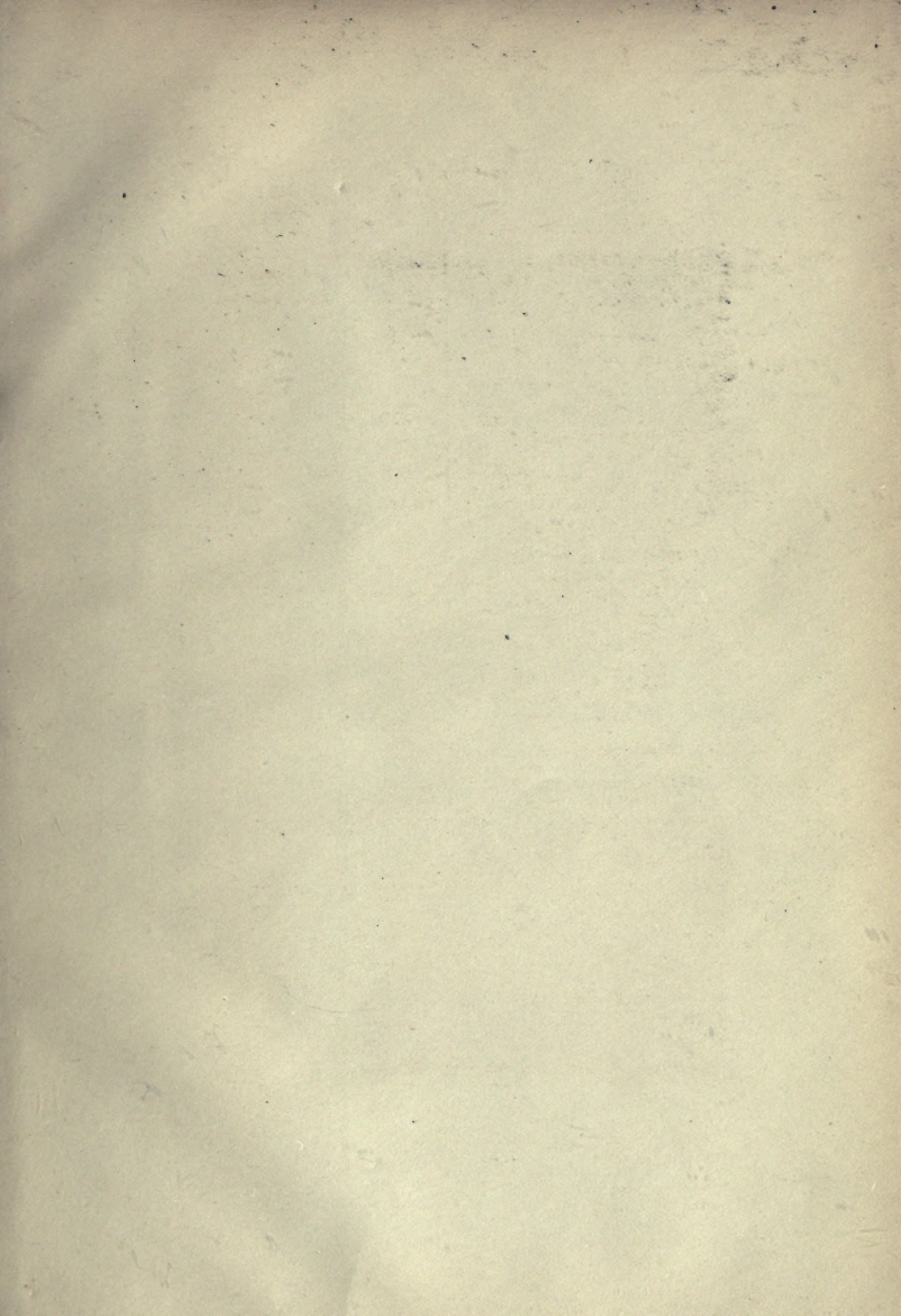
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